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IRON TRADE REVIEW

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Foundrymen Focus Interest on Cleveland Convention

Ohio City Becomes Host to Members of the American Foundrymen's Association for Fourth Time

CLEVELAND'S skyline has been changed markedly by the terminal development still under construction. This view taken looking east from the high-level bridge shows the imposing Terminal Tower rising 52 stories or 708 feet above the station concourse

FOR the fourth time in its history of 34 years, the American Foundrymen's association is preparing to hold its annual convention in Cleveland. During the week of May 12, this pioneer technical society dedicated to the welfare and advancement of the castings industry will conduct its thirty-fourth meeting in Public auditorium and will sponsor concurrently in the exhibit halls of the same structure the twenty-third exhibition of foundry equipment and supplies. With the recent completion of two large wings to the Public auditorium, the Fifth City has facilities which will permit the housing of the technical sessions, entertainment features and exposition of more than 90,000 square feet under one roof.

Through long and tireless service in its industry, the American Foundrymen's association has exerted a profound influence in placing foundry practice on a sound and efficient basis. It is not surprising, therefore, to find that more and more attention is being directed upon problems of personnel, management and sales promotion. Individual and co-operative research have been responsible for the manufacture of superior products and the tendency in recent years has been toward expensive plant improvement and modernization. Competition within the industry has demanded these changes to effect economies, but more recently competition without the industry has required more aggressive educa-

tional and sales campaign to encourage the use of castings for purposes where castings best serve the requirements. Recognizing the importance of these present-day needs, the officers of the American Foundrymen's association have made a conscientious effort to assemble for the Cleveland convention a program in which these topics can be considered. At the same time, there has been no slight, but rather improvement, in the portion dealing with foundry practice. Fewer papers have been scheduled for the various sessions to permit more extensive discussion. Fourteen technical sessions, three luncheon roundtable discussions and three shop-operation courses, are highlights of the convention. Efforts have been made to have the technical program contain something of vital interest to those associated with every branch of the foundry industry. Four divisions suggest themselves and the program accordingly will deal with the four main branches of the industry—gray iron, steel, malleable and nonferrous. Noon roundtable discussions are to be held on three of these main topics as well as shop-operation courses on each at 4:00 p.m. for the first four days of the meeting. Shop fundamentals to be considered in these courses are: Cupola materials and operation; gating and risering; high test irons, alloy additions and heat treatment; chipping, grinding and riser removal; coreroom practice; and operation of various types of electric furnaces in melting nonferrous metals.

FRED ERB
President, American Foundrymen's Association

In addition to these shop operations courses group discussions will be held each evening at 8:00 p. m. on the fundamentals of cupola operation. This work will be in charge of C. J. Scullin, Alda Research Laboratories Inc., St. Louis.

Technical sessions will include consideration and discussion of prepared papers covering foundry costs, malleable founding, sand control, management, apprentice training, materials handling, and melting and coreroom practice. The number of papers at each session, listed in detail elsewhere in this issue, has been held to a minimum to permit ample time for free discussion. A cost session, to be held the morning of May 13, will be devoted largely to a review of the cost system for foundries recently adopted by the Gray Iron institute, and to a discussion of the nonferrous cost group formed by foundries of the Davenport, Iowa, and Moline, Ill., district. The opinion has been expressed that this year's program comprises the most extensive program ever arranged at an annual meeting for the nonferrous foundrymen. Two technical sessions will be devoted to this branch of the industry. Australian steel foundry practice will be discussed by Daniel Clark of Adelaide, Australia, in the first exchange paper of the Bureau of Steel Manufacturers of Australia to the American Foundrymen's association. At the Thursday session, J. G. Pearce, director of the British Cast Iron Research association, Birmingham, England, will present the anual exchange paper of the Institute of British Foundrymen, discussing the correlation of tests for cast iron, a subject which has been investigated extensively by his association.

Arrangements for entertaining the

Photo by Blank-Stoller Inc.
C. E. HOYT
Executive Manager, American Foundrymen's Association

OFFICERS of the American Foundrymen's association who have been directing plans for the thirty-fourth annual convention are the three principal officers. Fred Erb, president of the association, is president, Erb-Joyce Foundry Co., Detroit. N. K. B. Patch, vice president and nominee for president of the American Foundrymen's association, is secretary and works manager, Lumen Bearing Co., Buffalo. C. E. Hoyt, executive manager, has served the association many years.

N. K. B. PATCH
Vice President, American Foundrymen's Association

visitors have been completed under the direction of a committee of foundrymen, equipment and supply interests, and others. Of considerable interest will be two banquets; one the third annual exhibitors' dinner on Tuesday evening, May 13, at Hotel Statler; the other the annual American Foundrymen's association banquet at Hotel Cleveland, on Thursday evening, May 15. The latter will be followed by a reception and dance. The Cleveland committee has arranged a special reception, buffet supper, dance and card party for all registered guests, to be held in the north wing of the auditorium, Monday evening, May 12. Teachers of foundry subjects at engineering schools will assemble Wednesday evening, May 14, for their annual foundry instructors' dinner. A. E. Wells, director of engineering shop laboratories, Cornell university, Ithaca, N. Y., will preside. The usual plant inspection trips for a convention of this sort have been scheduled to a number of foundries in the Cleveland territory. Plants to be open for visitation and what may be seen at each one are as follows:

WALTER L. SEELBACH
General Chairman, Cleveland Committee

Allyne-Ryan Foundry Co., Aetna road and East Ninety-first street—gray iron, automobile and diesel engine castings, two 84-inch cupolas.

Cleveland Co-Operative Stove Co., two plants, one at Central avenue and East Sixty-seventh street, the other (new) at 2800 Harvard avenue—gray iron, stoves, furnaces, four 84-inch cupolas.

Crucible Steel Co., Almira avenue and West Eighty-fourth street—small and medium weight carbon and alloy steel castings, one 1½-ton electric furnace.

Ferro Machine & Foundry Co., East Sixty-sixth street and Hubbard avenue—gray iron, automobile and pump castings, three 72-inch cupolas.

Forest City-Walworth Run Foundries, three plants with executive offices at 2488 West Twenty-seventh street—gray iron, miscellaneous light castings, stoves and furnaces, three 48-inch and three 54-inch cupolas.

Gluntz Brass Foundry Co., 10803 Harvard avenue—general jobbing in brass, bronge, aluminum, white metals and nickel, open-flame and crucible furnaces.

Kilby Mfg. Co., 4623 Lakeside avenue—gray iron, sugar mill castings and heavy general jobbing, two cupolas, 48-inch and 72-inch.

Lake City Malleable Co., (formerly Chisholm & Moore), 5046 Lakeside avenue—miscellaneous malleable iron castings, three 20-ton air furnaces.

Nickel Plate Foundry Co., 14915 Woodworth road—gray iron, general jobbing, machine tool and diesel engine castings, one 48-inch cupola.

West Steel Casting Co., 805 East Seventieth street—steel, truck wheels, tractor castings, miscellaneous small and medium weight castings, one electric furnace, two converters.

Westinghouse Electric & Mfg. Co., 1218 West Fifty-eighth street, gray iron, brass and aluminum castings for electrical machines and equipment, headquarters for the lighting division of the company.

The exhibition of foundry equipment and supplies which will be open from 9:00 a.m. until 5:00 p.m. each day except Monday and Wednesday, when the hours will be 12:00 noon until 10:00 p.m., will be considerably more extensive this year than the exhibition last year in Chicago, which was of a restricted character. Much of the larger and heavier type of equipment on display this year has not been shown since the exhibit in Philadelphia in 1928. In the two-year period since 1928 many marked changes in design and operation have been accomplished and the equipment on display at Cleveland this year should reflect the latest in engineering ideas. The exhibition will be housed in the large arena of the auditorium, the exhibition hall adjacent to the auditorium and the arcade which connects the two structures. Nonoperating exhibits will be located in the main arena and the heavier equipment will be shown in the exhibition hall. The arcade will be devoted to displays

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RALPH H. WEST
Vice Chairman, Cleveland Committee

ACTIVELY engaged in preparations for the convention and exhibition are many members of the Cleveland committee on arrangements. Chairman of the executive committee is Walter L. Seelbach, secretary-treasurer, Forest City-Walworth Run Foundries Co. Ralph H. West, president, West Steel Casting Co. is vice chairman of the executive committee and LeRoy P. Robinson, in charge of core oil sales, Werner G. Smith Co., is chairman of the local finance committee.

LEROY P. ROBINSON
Chairman, Finance Committee

Cleveland Foundry Show Will Be Largest and Most Complete

APPROXIMATELY 225 exhibitors of all types of foundry equipment will occupy about 90,000 square feet of floor space at the twenty-third national exhibition of foundry equipment, held in connection with the thirty-fourth annual convention of the American Foundrymen's association, May 12-16. Exhibits will be housed in the main arena of the Public auditorium at Cleveland, as well as in the large annex to the hall and the arcade joining the two buildings. It is arranged to have operating exhibits in the annex, nonoperating exhibits in the auditorium arena and educational exhibits in the arcade.

The list of manufacturers represented at the show is somewhat larger than the number at the previous nonrestricted exhibition, held in Chicago in 1929. A wide variety of equipment will be featured, such as to almost defy classification. Molding machines, sandblasting machines, furnaces, ladles, woodworking and metalworking tools, all types of abrasives, drying ovens, all grades of core sands and molding sands, and a complete range of ferrous and nonferrous castings and ingots, are only a few of the general types of equipment and supplies which will be displayed and demonstrated for visitors at the show.

Special technical or educational exhibits have been arranged by com-

Condensed Schedule

Monday, May 12

12:00 to 10:00 p.m.—Exhibition open.
Registration.
2:00 p.m.—Opening business session.
4:00 p.m.—Shop operation course on gray iron.
8:00 p.m.—Reception by Cleveland committee.

Tuesday, May 13

9:00 a.m. to 5:00 p.m.—Exhibition open.
10:00 a.m.—Session on foundry costs.
Session on malleable founding.
12:15 p.m.—Round table discussion on malleable founding.
2:00 p.m.—Session on gray iron metallurgy.
Session on nonferrous founding.
4:00 p.m.—Shop operation courses on steel, gray iron and nonferrous.
7:00 p.m.—Annual exhibitors dinner.

Wednesday, May 14

9:00 a.m. to 10:00 p.m.—Exhibition open.
10:00 a.m.—Session on management.
Session on gray iron foundry practice.
Session on nonferrous founding.
2:00 p.m.—Session on sand control.
Session on management.
4:00 p.m.—Shop operation courses on steel, gray iron and nonferrous.
7:00 p.m.—Annual dinner of foundry instructors.

Thursday, May 15

9:00 a.m. to 5:00 p.m.—Exhibition open.
10:00 a.m.—Session on steel founding.
Session on apprentice training.
12:15 p.m.—Round table discussion on steel founding.
Round table discussion on nonferrous founding.
2:00 p.m.—Session on gray iron metallurgy.
4:00 p.m.—Shop operation courses on steel, gray iron and nonferrous.
7:00 p.m.—Annual banquet, Hotel Cleveland.

Friday, May 16

9:00 a.m. to 5:00 p.m.—Exhibition open.
10:00 a.m.—Session on material handling.
Session on general shop practice.

Schedule of Papers

MONDAY, MAY 12

2:00 p.m.—Opening Business Session
4:00 p.m.—Shop Operation Course—Gray Iron
8:00 p.m.—Cupola Discussion Course

TUESDAY, MAY 13

10:00 a.m.—Foundry costs
A Recommended Standard Cost System for Gray Iron Foundries, by J. L. Carter, Sacks-Barlow Foundries Inc., Newark, N. J.
Organizing a Nonferrous Foundry Cost Group, by C. W. Humphries, Westco Chippewa Pump Co., Davenport, Iowa.

10:00 a.m.—Malleable Founding
Continuous Melting Process as Applied to Malleable Iron, by B. R. Mayne, Saginaw Malleable Iron Div., General Motors Corp., Saginaw, Mich.
Factors Affecting Machinability of Malleable Cast Iron, by H. A. Schwartz, National Malleable & Steel Castings Co., Cleveland.
Some Features of the Pulverized-Coal-Fired Air Furnace, by E. F. Wilson, Jefferson Union Co., Lockport, N. Y.

12:15 p.m.—Round Table—Malleable Iron Founding
Chairman—P. C. DeBruyne

2:00 p.m.—Cast Iron Metallurgy
Effects on Cast Iron of Prolonged Heating at 800-1100 Degrees Fahr., by R. S. MacPherran and R. H. Krueger, Allis-Chalmers Mfg. Co., Milwaukee.
Blistering Tendency of Some Cast Iron When Enameled, by A. I. Krynitsky and W. H. Harrison, United States bureau of standards, Washington.

2:00 p.m.—Nonferrous Foundry Practice
Deep-Etch Test of Brass, by W. F. Graham and L. A. Meisse, Ohio Brass Co., Mansfield, O.
Application of Ingot Metal to Production of Brass and Bronze, by William Romanoff and C. O. Thieme, H. Kramer & Co., Chicago.
Overcoming Alloy Ingot Troubles in the Brass Foundry, by W. S. Paulson, Thos. Paulson & Son Inc., Brooklyn, N. Y.

4:00 p.m.—Shop Operation Courses
Gray Iron Founding.
Steel Founding.
Nonferrous Founding.

8:00 p.m.—Cupola Discussion Course

WEDNESDAY, MAY 14

10:00 a.m.—Management
Personnel Management, by Dr. Harry Meyer, Frigidaire Corp., Dayton, O.

10:00 a.m.—Gray Iron Foundry Practice
Briquetting Cast Iron Borings, by H. Rayner, Dodge Bros. Corp. division, Chrysler Corp., Detroit.
Continuous Melting from Cold Stock of Gray Iron in Electric Furnace, by N. L. Turner, Beach Foundry, Ltd., Ottawa, Ont.
Methods for Determining the Volume Changes Undergone by Metals During Casting, by E. J. Ash, A. F. A. research associate, United States bureau of standards, Washington.

10:00 a.m.—Nonferrous Founding
(a) Care and Maintenance of Fuel-Fired Furnace Linings in the Nonferrous Foundry, and (b) Selection and Use of Refractory-Maintenance Cement in the Nonferrous Foundry, by H. E. White, Lava Crucible Co., Pittsburgh.

(Concluded on next page)

mittees of the foundrymen's association and will include exhibits on sand testing and control, apprentice training contests and metallurgical specimens. Another section will be devoted to exhibits of some 16 engineering schools, displaying materials developed for purposes of instruction in pattern-making and foundry courses. Engineering and trade schools participating in these exhibits are: University of Iowa; University of Illinois; University of Michigan; University of Nebraska; University of Pennsylvania; University of North Dakota; Georgia School of Technology; Ohio State university; Purdue university; Michigan State college; Rose Polytechnic institute; Louisiana Polytechnic institute; Cornell university; Carnegie Institute of Technology; Rochester Shop school; and Cleveland Foundry Trade school.

Engineering, technical and trade associations also will be represented and will have on exhibition material of interest to foundrymen. Among the organizations in this group will be the following: American Society of Mechanical Engineers, American Society for Testing Materials, National Founders' association, Steel Founders' Society of America, National Safety council, Ohio Foundries' association, Gray Iron institute, Malleable Iron Research institute, the bureau of standards and the bureau of mines. A number of companies will feature woodworking and metalworking tools including grinders and grinding wheels, saws, patternmaking equipment, portable tools of pneumatic, electric and flexible shaft types, also welding and cutting equipment, compressors and similar units. These manufacturers are as follows:

Abrasive Co.
Air Reduction Sales Co.
Biax Flexible Shaft Co. Inc.
Black & Decker Mfg. Co.
Buckeye Portable Tool Co.
Carborundum Co.
Combined Supply & Equipment Co.
DeWalt Products Corp.
Electro-Chemical Pattern & Mfg. Co.
Cyril A. Fox
General Electric Co.
Globe Steel Abrasive Co.
R. G. Haskins Co.
Hisey-Wolf Machine Co.
Kindt-Collins Co.
Kling Bros. Engineering Works.
H. W. Knight & Son
Linde Air Products Co.
McCloud River Lumber Co.
Mall Tool Co.
Manhattan Rubber Co.
Marschke Mfg. Co.
Norton Co.
S. Obermayer Co.
Oliver Machinery Co.
Precision Grinding Wheel Co.
Rotor Air Tool Co.
John Royle & Son
Safety Grinding Wheel & Machine Co.
Smith-Monroe Co.
Spencer Turbine Co.
Stone Pattern Mount Co.
Sugar Pine Pattern Lumber exhibit
United States Electrical Tool Co.
Van Dorn Electric Tool Co.
J. D. Wallace & Co.
Westinghouse Traction Brake Co.

Handling equipment of all designs plays an important part in the operation of the modern foundry. This

Schedule of Papers

(*Concluded from preceding page*)

Stronger Aluminum Castings by Improved Foundry Practice, by E. M. Gingerich and H. J. Rowe, Aluminum Co. of America, Pittsburgh.
Progress in Die-Casting Industry, by Marc Stern, A. C. Spark Plug Co., Flint, Mich.

2:00 p.m.—Sand Control
Sand Control as Viewed from the Producers' Standpoint, by W. W. Kerlin, Enterprise Sand Co., Pittsburgh.
Reports of committees.

2:00 p.m.—Management
The Value of Sales Analysis and Market Research, by J. P. Newman, McGraw-Hill Publishing Co., New York.
The Value of Cleanliness and Neatness in a Foundry, by E. Trapken, Sandusky, O.

4:00 p.m.—Shop Operation Courses
Steel Founding.
Gray Iron Founding.
Nonferrous Founding.

8:00 p.m.—Cupola Discussion Course

THURSDAY, MAY 15

10:00 a.m.—Steel Founding
Reclaiming Steel Foundry Sands, by M. D. Pugh, Illinois Testing Laboratories Inc., Chicago.
Address by George Batty, Steel Castings Development bureau, Philadelphia.
Australian Steel Foundry Practice, by D. Clark, Adelaide, Australia. (Submitted on behalf of the Bureau of Steel Manufacturers of Australia.)
Reports of committees.

10:00 a.m.—Apprentice Training
Foundry Apprentice to Apprentice Foreman, by E. H. Ballard, General Electric Co., West Lynn, Mass.
Where are the Young Foundrymen? by S. W. Utley, Detroit Steel Casting Co., Detroit.

12:15 p.m.—Round Table—Steel Founding
Chairman—W. J. Corbett

12:15 p.m.—Round Table—Nonferrous Founding
Chairman—H. M. St. John

2:00 p.m.—Gray Iron—Metallurgy
Carbon and Sulphur in the Cupola—Some Properties of Coke, by James T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala.
Correlation of Tests for Cast Iron, by J. G. Pearce, director, British Cast Iron Research association, Birmingham, England. (Presented as the Annual Exchange Paper of the Institute of British Foundrymen.)

4:00 p.m.—Shop Operation Courses
Steel Founding.
Gray Iron Founding.
Nonferrous Founding.

8:00 p.m.—Cupola Discussion Course

FRIDAY, MAY 16

10:00 a.m.—Materials Handling
Continuous Core Ovens, by D. B. Hill, Palmer-Bee Co., Detroit.
Material Handling, by W. M. Booth, Syracuse, N. Y.
Reducing Materials Handling Costs in the Jobbing Foundry, by F. C. Campbell, Eastern Corp., New York.

10:00 a.m.—Melting Furnaces and Core Practice
Induction Furnaces for Ferrous and Nonferrous Metals, by Manuel Tama, Berlin, Germany.
Value of Analyses and Specifications for Core Oil, by J. A. Gitzen, Lindsay-McMillan Co., Milwaukee.
A study of Nonferrous Crucible Melting, by H. E. White, Lava Crucible Co. of Pittsburgh.

Shop Operation Courses

MONDAY, MAY 12, 4:00 P. M.

Gray Iron—Cupola Materials.
Leader: C. J. Scullin, Alda Research Laboratories Inc., St. Louis.
Assistant Leader: E. J. Lowry, consulting metallurgist, Detroit.

TUESDAY, MAY 13, 4:00 P. M.

Steel—Chipping, Grinding and Riser Removal.
Leader: S. R. Robinson, Industrial Brownhoist Corp., Bay City, Mich.

Gray Iron—Cupola Materials and Operation.
Leader: R. S. MacPherran, Allis-Chalmers Mfg. Co., Milwaukee.
Assistant Leader: F. J. Walls, Wilson Foundry & Machine Co., Pontiac, Mich.

Nonferrous—Fuel Fired Furnace Melting.
Leader: E. R. Darby, Federal Mogul Corp., Detroit.

WEDNESDAY, MAY 14, 4:00 P. M.

Steel—Coreroom Practice.
Leader: J. M. Sampson, General Electric Co., Schenectady, N. Y.
Assistant Leaders: H. E. Mooney, Falk Corp., Milwaukee; and W. F. Wilson, American Steel Foundries, East Chicago, Ind.

Gray Iron—Gating and Risering.
Leader: H. W. Dietert, United States Radiator Corp., Detroit.
Assistant Leaders: E. M. Handley, Chain Belt Co., Milwaukee; and Dr. Fritz Meyer, National Radiator Co., Johnstown, Pa.

Nonferrous—Induction-Type Electric Furnace Melting.
Leader: R. W. Parsons, Ohio Brass Co., Mansfield, O.

THURSDAY, MAY 15, 4:00 P. M.

Steel—Practical Aspects of Heat Treating.
Leader: A. W. Lorenz, Bucyrus-Erie Co., South Milwaukee, Wis. Assistant Leaders: On manganese steel, H. P. Evans, Hubbard Steel Foundry Co., East Chicago, Ind.; on alloy steel castings, D. Zuege, Sivyer Steel Casting Co., Milwaukee; on fuel oil characteristics, A. C. Jones, Lebanon Steel Foundry Co., Lebanon, Pa.

Gray Iron—High Test Irons, Alloy Additions and Heat Treatment.
Leader: H. Bornstein, Deere & Co., Moline, Ill. Assistant Leader: F. B. Coyle, International Nickel Co., New York.

Nonferrous—Indirect-Arc Type Electric Furnace Operation.
Leader: D. E. Broggi, Neptune Meter Co., Long Island City, N. Y.

In addition to the shop-operation course sessions mentioned on gray iron, C. J. Scullin, assisted by various metallurgists, will hold discussion groups each evening on the fundamentals of cupola operation. These will convene at 8:00 p. m. in the Hotel Statler on Monday, Tuesday, Wednesday and Thursday evenings.

class of material includes conveyors, buckets, cranes and monorail hoists both electric and handpower, trucks, cars, tractors, tote boxes, etc. Builders in this class who will have exhibits of handling equipment include:

American Engineering Co.
American MonoRail Co.
Atlas Car & Mfg. Co.
Automatic Transportation Co. Inc.
Baker-Raulang Co.
C. O. Bartlett & Snow Co.
Beardsley & Piper Co.
Blaw-Knox Co.
Box Crane & Hoist Corp.
Chisholm-Moore Hoist Corp.
Clark Tructractor Co.
Clearfield Machine Co.
Cleveland Electric Tramrail Division

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Productive Equipment Corp. 557

R

N. Ransohoff Inc. 458, 459
Reading Chain & Block Corp. 551
Reeder Mfg. Co. 435
Robbins & Myers Inc. 500
Robeson Process Co. 91
Rogers Brown & Crocker Bros. Inc. 86, 88, 90
Rotor Air Tool Co. 405, 406
Royer Foundry & Machine Co. ..... 360 to 363
John Royle & Sons 526
Ruemelin Mfg. Co. 235

S

Safety Clothing Co. 79
Safety Equipment Service Co. 99
Safety First Shoe Co. 100
Safety Grinding Wheel & Machine Co. 364, 365, 366
Sand Products Corp. 20
Semet-Solvay Co. 77
Shepard Niles Crane & Hoist Corp. ..... 382, to 385
W. W. Sly Mfg. Co. ..... 340 to 351
Eugene W. Smith Inc. 25
Smith Facing & Supply Co. 31
Smith-Monroe Co. 540
Smith Oil & Refining Co. 103
Werner G. Smith Co. 40, 65
Spencer Turbine Co. 247, 249
Standard Conveyor Co. 234
Standard Safety Equipment Co. 441
Standard Silica Co. 6
Steelblast Abrasives Co. 437
Sterling Wheelbarrow Co. 57
Frederic B. Stevens Inc. 55
Stone Pattern Mount Co. 87
Stoney Foundry Engineering & Equipment Co. 293, 295
Superior Sand Co. 74

T

Tabor Mfg. Co. 379, 380, 381
Warner R. Thompson Co. 45
Tiona Petroleum Co. 85
Tottenville Copper Co. Inc. 27
Truscon Steel Co. 558, 559
Tuscora Sand & Coal Co. 21
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United Compound Co. 97
U. S. Electrical Tool Co. ..... 451 to 457
U. S. Graphite Co. 89
Universal Sand Equipment Co. 219 to 222

V

Van Dorn Electric Tool Co. ..... 535 to 543
Vesuvius Crucible Co. 436

W

Wadsworth Core Machine & Equipment Co. 429
J. D. Wallace & Co. 207, 208
Jervis B. Webb Co. ..... 460 to 463
Westinghouse Traction Brake Co. 370, 371, 372
White Bros. Smelting Corp. 8
White Rock Silica Co. 26
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E. J. Woodison Co. 24
T. B. Wood's Sons Co. 35
Wright Mfg. Co. 317, 319

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Yale & Towne Mfg. Co. 309, 310
Young Brothers Co. 225

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Zanesville Sand Co. 58

Clifford Norton

J. S. SMITH

Chairman, Plant Visitation Committee

Cleveland Wire Spring Co.
Deister Concentrator Co.
Harnischfeger Corp.
Harrington Co.
Hayward Co.
Link-Belt Co.
Louden Machinery Co.
Mathews Conveyor Co.
Milwaukee Electric Crane & Hoist Corp.
National Engineering Co.
Newaygo Engineering Co.
Northern Engineering Works
Palmer-Bee Co.
Reading Chain & Block Corp.
Robbins & Myers Inc.
Shepard Niles Crane & Hoist Corp.
Standard Conveyor Co.
Jervis B. Webb Co.
G. H. Williams Co.
Whiting Corp.
Yale & Towne Mfg. Co.

Molding machines, core machines, flasks, rammers and other equipment used in the preparation of molds and cores will be exhibited by the following:

Adams Co.
American Foundry Equipment Co.
Arcade Mfg. Co.
H. L. Baumgardner Mfg. Corp.
Champion Foundry & Machine Co.
Dayton Pneumatic Tool Corp.
Wm. Demmler & Bros.
Herman Pneumatic Machine Co.
Hines Mfg. Co.
International Molding Machine Co.
Johnston & Jennings Co.
Malleable Iron Fittings Co.
Milwaukee Foundry Equipment Co.
Moline Iron Works
Wm. H. Nicholls Co. Inc.
S. Obermayer Co.
Osborn Mfg. Co.
Sterling Wheelbarrow Co.
Tabor Mfg. Co.
Truscon Steel Co.
Wadsworth Core Machine & Equipment Co.
T. B. Wood's Sons Co.

Methods for handling molten metal have been given much attention in the design of improved equipment. Pouring devices, ladles, crucibles and furnaces are included in this classification. Various types of furnaces will be on display—induction furnaces, oil and gas fired crucible furnaces for melting nonferrous metals and alloys and the larger type electric furnaces—many of which will be in actual operation. Companies sponsoring displays of this type of foundry equipment are:

Ajax Metal Co.
Asbury Graphite Mills
Campbell-Hausfeld Co.
Chicago Crucible Co.
Cleveland Electric Tramrail Division
Detroit Electric Furnace Co.
Dixon Crucible Co.
General Electric Co.
Grindle Fuel Equipment Co.
Holcroft & Co.
Kindt-Collins Co.
Lava Crucible Co. of Pittsburgh
Modern Pouring Device Co.
Monarch Engineering & Mfg. Co.
Pittsburgh Electric Furnace Corp.
U. S. Graphite Co.
Vesuvius Crucible Co.
Whiting Corp.
Wilbraham-Green Division

Along this same line of heating equipment are core ovens and drying ovens diversified designs, exhibited by:

Drying Systems Inc.
Foundry Equipment Co.
Holcroft & Co.
Paul Maehler Co.
Monarch Engineering & Mfg. Co.
Young Bros. Co.

Conditioning, separating and screening foundry sands call for certain types of machines and equipment including sand mixers and conditioners, riddles, vibrator screens, crushers and the like. Show visitors will find this class of products at the booths of the following:

Blystone Mfg. Co.
Champion Foundry & Machine Co.
Clearfield Machine Co.
Deister Concentrator Co.
El-Roy Sand Conditioner
Great Western Mfg. Co.
Link-Belt Co.
Lowe Mfg. Co.
J. S. McCormick Co.
National Engineering Co.
Newaygo Engineering Co.
Royer Foundry & Machine Co.
Stoney Foundry Engineering & Equipment Co.
W. S. Tyler Co.
Universal Sand Equipment Co.

Those interested in the latest designs in cleaning equipment which includes tumbling barrels, sandblasting

Photo by Blank-Stoler Inc.

DAN M. AVEY

Chairman, Publicity Committee

Cleveland Public Auditorium which will house the convention and exhibition of the American Foundrymen's association, May 12-16

machines, steel abrasives and grit, will find them being displayed for their examination by:

American Foundry Equipment Co.
American Steel Abrasives Co.
Macleod Co.
New Haven Sand Blast Co.
Pangborn Corp.
Patch-Wegner Co. Inc.
N. Ransohoff Inc.
Ruemelin Mfg. Co.
W. W. Sly Mfg. Co.
Steelblast Abrasives Co.
White Rock Silica Co.
Whiting Corp.
Zanesville Sand Co.

Passing now to that portion of the exposition which deals with materials rather than equipment, one of the largest classifications is that group of companies featuring various types of sands—core sands, molding sands and other grades of foundry sand. Twenty-one exhibitors whose displays include this class of material are:

Albany Sand & Supply Co.
Ayers Mineral Co.
Eastern Clay Products Inc.
Great Lakes Foundry Sand Co.
Houghland & Hardy Inc.
Industrial Minerals Co.
Industrial Silica Corp.
Keener Sand & Clay Co.
New Jersey Silica Sand Co.
Peerless Sand Co.
George F. Pettinos
Rogers, Brown & Crocker Bros. Inc.
Sand Products Corp.
Eugene W. Smith Inc.
Standard Silica Co.
Superior Sand Co.
Warner R. Thompson Co.
Tuscora Sand & Coal Co.
White Rock Silica Corp.
Whitehead Bros. Co.
Zanesville Sand Co.

Raw materials such as pig iron, coke, iron ore and aluminum, as well as several varieties of nonferrous alloys in the forms of ingots and castings, also ferrous castings, will be displayed prominently. Listed in exhibitors of this group are:

Ajax Metal Co.
Alloys & Products Inc.
American Brake Shoe & Foundry Co.

A glimpse of Playhouse Square

Photo by Blank-Stoller Inc.

S. C. VESSY

Chairman, Entertainment Committee

Apex Smelting Co.
Bethlehem Steel Co.
British Aluminum Co. Ltd.
Chateaugay Ore & Iron Co.
Detroit Electric Furnace Co.
J. E. Dockendorff & Co. Inc.
H. Kramer & Co.
Michigan Smelting & Refining Co.
National Smelting Co.
Niagara Falls Smelting & Refining Corp.
Rogers Brown & Crocker Bros. Inc.
Tottenville Copper Co. Inc.
White Bros. Smelting Corp.

The superior qualities of present-day refractories are encouraging further strides in improving furnace operation and are eliminating much of the waste and loss often incurred by the use of antiquated refractories. Refractory brick, high temperature cement, crucibles and special refractories adaptable to the foundry industry will be exhibited by several manufacturers, as follows:

Carborundum Co.
John L. Cummings Co.
Joseph Dixon Crucible Co.
Electro Refractories Corp.
Illinois Clay Products Co.
Ironton Fire Brick Co.
Keener Sand & Clay Co.
Lava Crucible Co. of Pittsburgh
Mt. Jewett Fire Clay Co.
North American Refractories Co.
S. Obermayer Co.
Peerless Sand Co.

A number of exhibitors will display core binders, core oils, core and mold washes, dry core compounds, facings, etc. In this list are the following:

Dayton Oil Co.
Kelly Graphite Mills Inc.
Lindsay-McMillan Co.
H. E. Mills Mfg. Co.
Pennsylvania Lubricating Co.
Smith Facing & Supply Co.
Smith Oil & Refining Co.
Werner G. Smith Co.
Spencer Kellogg & Sons Sales Corp.
Frederic B. Stevens Inc.
Tiona Petroleum Co.
E. J. Woodison Co.

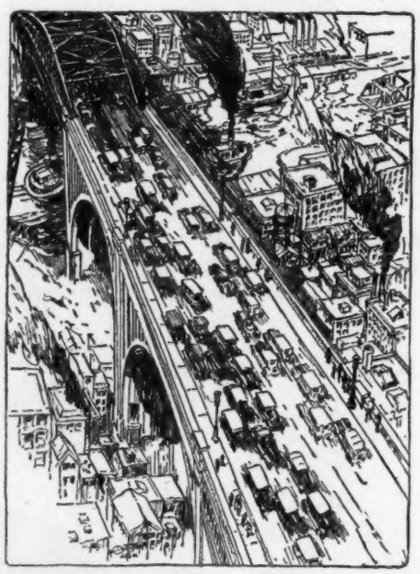
Making the foundry safe for the foundryman is the aim of a number of companies who will exhibit what the up-to-the-minute foundryman is wearing in the way of goggles, gloves, shoes, and protective clothing. Four companies in this classification are:

Safety Clothing Co.
Safety Equipment Service Co.
Safety First Shoe Co.
Standard Safety Equipment Co.

Mass production methods and high-speed operation are factors requiring careful attention to plant design and layout, also to design and location of equipment. The following four companies make a specialty of this type of work and will have exhibits displaying in pictures and drawings the features of modern plant and equipment design and layout:

Austin Co.
Chain Belt Co.
Frank D. Chase Inc.
Griffin Engineering Co.

Products of a miscellaneous nature to be exhibited include metallographic equipment, annealing pots, vent wax, speed reducers, pyrometers, storage batteries, testing and control devices, washroom equipment, and small items such as chaplets, tumbling stars, core wires, gaggers, nailing



The well-known high-level bridge

plates, core plates, nails, pins, flask bands and belt lacers. A large group of exhibitors will have these miscellaneous items on display, including the following:

American Brake Shoe & Foundry Co.
American Vent Wax Co.
Bausch & Lomb Optical Co.
Bradley Wash Fountain Co.
Clipper Belt Lacer Co.
Harry W. Dietert
D. A. Ebinger Sanitary Mfg. Co.
Electric Storage Battery Co.
Fanner Mfg. Co.
Federal Foundry Supply Co.
Fowler & Union Horse Nail Co. Inc.
Houghland & Hardy Inc.
Illinois Testing Laboratories Inc.
W. A. Jones Foundry & Machine Co.

J. S. McCormick Co.
R. W. McIlvaine Co.
Michigan Screw Co.
Moltrup Steel Products Co.
George F. Pettinos
Reeder Mfg. Co.
Sterling Wheelbarrow Co.
Frederic B. Stevens Inc.
Truscon Steel Co.
United Compound Co.
Whitehead Bros. Co.
T. B. Wood's Sons Co.

Photo by Blank-Stoller Inc.
FRANK G. STEINEBACH
Secretary, Cleveland Committee

Foundrymen Focusing on Cleveland Convention

(*Concluded from Page* 107)

of various trade and technical associations pertaining to one or more of the various branches of the industry; exhibits of a number of technical colleges administering courses in foundry practice; and displays of a number of committees of the foundrymens' association. The list of private exhibitors totals approximately 225.

Timely news of the convention and a complete digest of proceedings each day as well as detailed advance information will be made available for convention visitors through the medium of *The Foundry Daily*, an 8-page newspaper, published four days of the convention by *The Foundry*, Cleveland. Copies of the four issues will be mailed by the American Foundrymen's association to its members. *The Foundry Daily* made its first appearance at the Cleveland convention in 1923, and was issued again in Detroit in 1926 and Philadelphia in 1928. Distribution of the paper at the convention and exposition will be gratuitous and extra copies may be obtained at the booths of the IRON TRADE REVIEW and the Penton Publishing Co., 96, 98 and 100.

Student Is Independent While in Training

R. L. Cawood, president, Patterson Foundry & Machine Co. and Patterson Steel Products Co., East Liverpool, O., has announced a new mechanical training course which the companies put in effect May 1. The course is open to young men of 18 years or over. The applicants must have the equivalent of a high school education and will first be placed on a three months probational period, during which they will be paid nominal remuneration.

J. H. REDHEAD
Chairman, Special Reception Committee

Those passing successfully this period will then be eligible for the complete two and one-half year training course. The student then will be paid wages sufficient to make them independent of other support. Two courses are available, professional and trades.

The estimated cost to the employer for the two and one-half year course is $2500 for each pupil. At the expiration of the course the students of the professional course will be employed as engineers, draftsmen, salesmen or estimators, while the students of the trades course will be employed as machinists, molders, patternmakers and welders.

Cleveland Photographs by Courtesy Chamber of Commerce
The Public Square in Cleveland as it appears from the heights of Terminal Tower

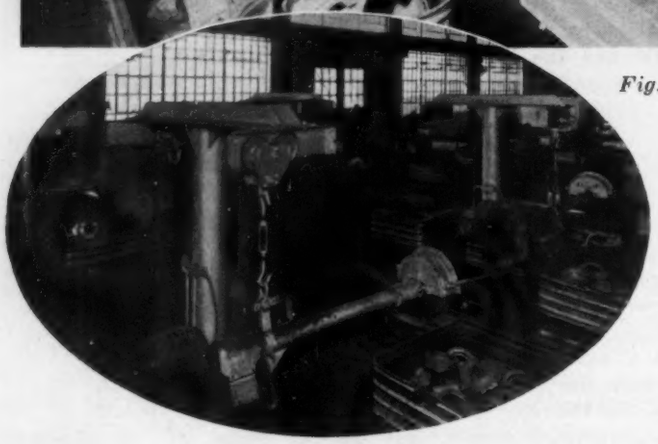


Fig. 1—*(Above)—Preliminary repair departments.* *Fig.* 2.—*(Left)—Swing frame grinders*

Steel Foundry of Cleaning

THE bottle neck in many steel foundries is the cleaning department. This was the situation at Eastern Steel Castings Inc., Newark, N. J., some years ago, but through the installation of conveyors and new equipment and the adoption of a piece rate and bonus system of compensation, the company has been able to cut its previous cleaning costs more than one half. Cleaning operations have been speeded up to such an extent that work reaching the shakeout one day is in the shipping room the second day following.

The cleaning department embodies the fullest use of roller conveyors for the transporting of castings from one operation to another. While conveyors are used extensively throughout the foundry those employed in the cleaning department extend from the shakeout to the shipping department and back to the shakeout. The arrangement of conveyors may be likened somewhat to a railroad system with its main line and its sidings. The main line conveyors are crossed at right angles at frequent intervals by side lines which take work from the main line to process equipment, and then deliver it back to the main line or else direct it to a succeeding process. The path of castings from the shakeout through the cleaning department has been laid out after much careful study so as to avoid all unnecessary back movement. Castings which pass inspection and thus need no repairs move steadily forward through the sandblast, grinding, chipping and sorting operations to the shipping department.

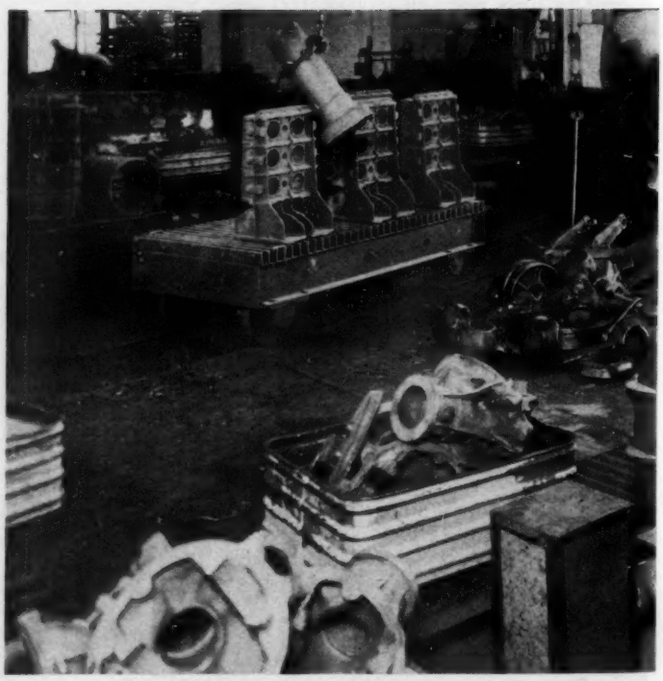


Fig. 3—*Small castings are ground on stand*

The shakeout which is the starting point for cleaning

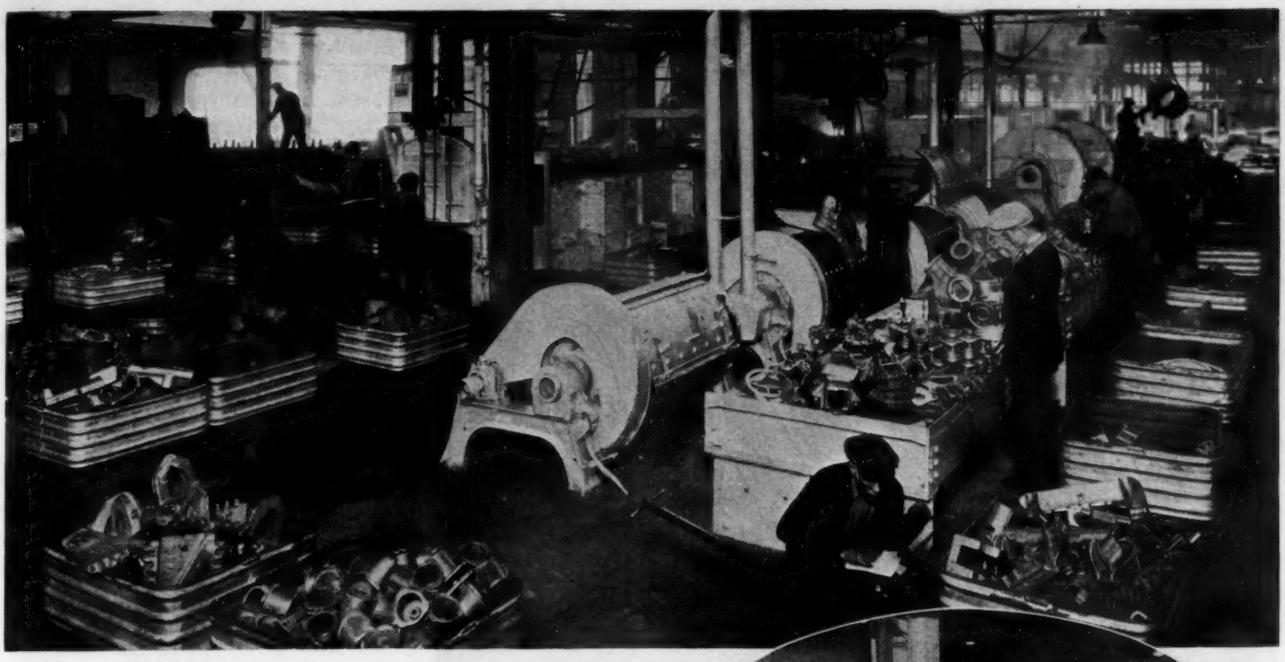


Fig. 4—(Above)—Tumbling and inspection of castings. Fig. 5—(Right)—Sandblasting the castings

Reduces Cost Castings

By H. R. Simonds

Associate Editor, Iron Trade Review

grinders and large work on swing frame units

processes is a raised vibrating grating inclined to the horizontal so that the castings almost slide off of their own accord. The height of the grating is such that the front or lower side comes just above steel boxes standing on roller conveyors ready to receive the castings. The method at this point is clearly shown in Fig. 7. Two men at the shakeout handle the full plant production which ranges from 90 to 110 tons a week for one shift operation.

One of the features contributing to the successful operation of the cleaning department is the sorting and separation of castings. This starts back on the molding floor where castings of one particular type are poured at one location and held as far as possible as a unit delivery to the shakeout. This means that instead of having all grades of castings on the shakeout at one time, large castings are handled almost exclusively for a time and then smaller castings follow. Of course it is impossible to draw any sharp line at this point, but the management has found that a marked difference in classification at the shakeout may be secured without interfering in any way with the efficiency of molding or of transporting from the molding floor to the shakeout.

A further selection takes place at the shakeout where castings of one variety are placed together in the steel boxes as far as possible. The section of conveyor which passes in front of the shakeout is known as the shakeout loop. From the shakeout the boxes filled with castings travel by gravity on roller conveyors to the sandblast. The system of conveyors is continuous to and from the shipping department and the empty boxes at the shipping

Fig. 6 — (Above) — General view of the cleaning department

department are elevated so that they travel by gravity back to the shakeout loop. The conveyor design will be described in greater detail later. Briefly, the conveyors consist of lines of parallel rollers each 20 inches long, supported about 12 inches above the floor. The height varies at times to secure gravity propulsion.

The distance from the shakeout to the sandblast is sufficient to allow the castings to cool on the way and thus permit the first inspection immediately before the castings enter the sandblast section. The inspectors at this point are paid a bonus based on the percentage of defective castings.

Inspection Service Unusual

However, the bonus is not operative unless they detect at least three-quarters of the plant's total percentage of defectives. This is thought to be an unusual inspection service. The castings in the phrase of the shop are "in the green," and the detecting of so large a proportion of defects while the heads and gates are still on is a big labor saving process, as the cleaning labor of the defective castings thus is entirely eliminated.

The small castings pass to a sprue cutter where the heads and gates are removed before they enter the sandblast. Heads and gates of all castings are thrown directly into charging boxes which are transported by conveyor and then elevator to the charging floor. The large castings go to the sandblast tables after the first inspection, while the small castings have a second inspection after leaving the sprue cutters. The inspection tables are built to bridge over the conveyors. This scheme helps to economize space and also cuts down the handling of the castings by the inspectors.

Double Premium Offered

From the sandblast the larger castings go to a scale where they are weighed in to the burn off section. The burn off men using oxyacetylene torches have every possible convenience and the castings are lined up for them on slotted benches. They are paid on a tonnage basis with a premium based on saving of gas. On certain work the burn off men receive a second premium based inversely on the amount of metal removed by the grinders in the succeeding operations. In other words, if the burn off men can come close to the specified finish surface and thus reduce the amount of grinding required they receive half of the saving which the close work that they do makes possible. After burning, as indeed

Fig. 7—(Left)—The shakeout. Fig. 8 — (Below) — Secondary repair department

after nearly every operation, there is a further classification. That is, pieces of a type are thrown into one box as far as possible. From the burn off section the pieces are weighed out and this same weight becomes the weighing-in figure for the grinding department. Small castings travel on the conveyors to the floor stand grinding section, while the larger castings go to the special centrally located swing grinders.

Fast and Efficient Machines

These grinding machines, shown in Fig. 2, which were designed by the company, are claimed to be exceedingly fast and efficient. The grinding wheel, as may be seen, is directly connected to a motor which puts it at right angles to the line of vision of the operator in his natural position. Thus the operator instead of doing his work by a back and forward motion, grinds by a side motion.

The grinding speed of the wheels is kept as near uniform as possible at approximately 9500 surface feet a minute. This is done by arranging the grinders in three groups with a different motor speed for each group. The new grinding wheels of large diameter are placed on the slow motor machines and as the wheels wear down they are moved first to the intermediate speed motors and then to the high speed motors.

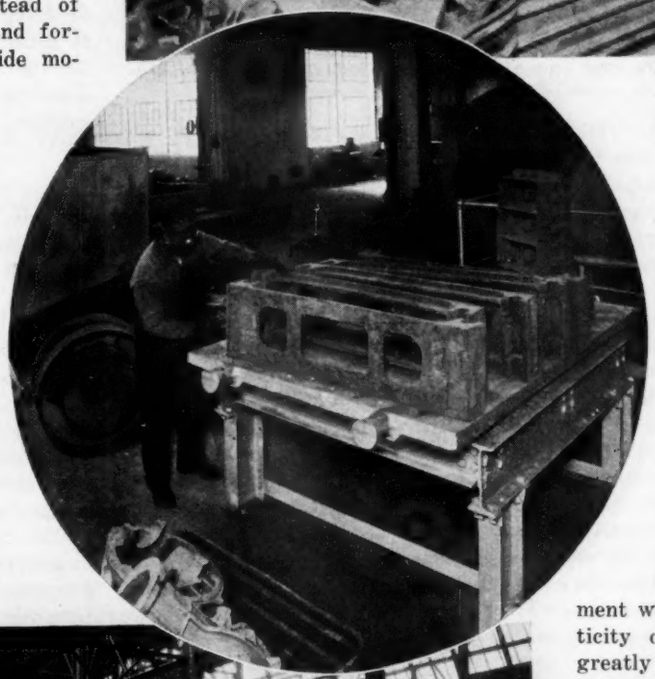


Fig. 10—(*Left*)—*An inspection table. Fig.* 11—(*Above*) —*Removing gates and heads*

Fig. 9 — (*Below*) — *Special benches are provided for the chippers*

A convenient foot operated hydraulic vise has been designed for holding the castings on the low benches while using the the swing grinders. The swing grinder stands have been designed for two grinders, one on each side, but only one is normally in use. This particular feature follows the company's plan for the whole department which is to have sufficient elasticity of equipment and space for greatly increasing the capacity. The management states that the production of the cleaning department could be increased by 200 per cent almost overnight. At present the average time of a casting in the cleaning department is two days or less, whereas under the old scheme of cleaning it frequently took three weeks to get a casting from the shakeout to the shipping department and the average time was not much under this.

Metal Removed Sets Wage

In the grinding department the operator's pay is based on the amount of metal removed. This amount is determined by subtracting the weighing-out tickets from the weighing-in tickets.

From the grinding department the castings are transported to the chipping section. The chippers are pro-

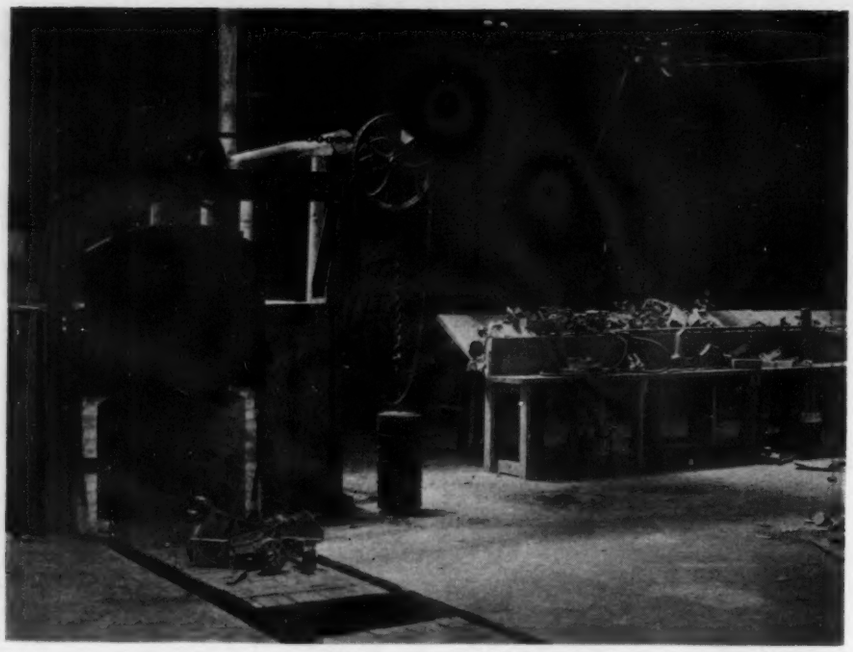


Fig. 12—Cleaning departments and annealing furnace before the reorganization. Compare with same department shown in Fig. 4

vided with solid concrete benches with wood block tops. These benches are of double width with a partition running between. The chippers stand along one side and put the work over the partition as they finish it. The castings are then inspected on the other half of the bench. This is the fourth inspection. If repairs are needed the castings are marked with chalk to indicate the nature of the repairs and are then sent either to the electric or to the oxyacetylene welders. The welders have special enclosures provided with revolving tables. New work is placed on one side of table while work on the other side is being welded. The enclosures are without top and bottom permitting a free circulation of air. Castings at this point which pass inspection are sent to the annealing furnaces.

All castings are annealed on car type annealers. The operation following annealing is tumbling and then follows in sequence an additional classification, the fifth inspection and finally weighing as they leave the cleaning department and enter the shipping department. This final weighing gives the output of the cleaning department and the figure may be compared each day with the weight at the first scale which gives the tonnage entering the department.

The shipping department is a large airy space with wood block floor and the handling here is done almost entirely by lift truck. The orders are made up as shown in Fig. 9 direct to lift truck boxes. These are then picked up and carried either to motor trucks or railway cars for shipping.

Castings which do not pass the fifth inspections go to a secondary repair department which is virtually a duplication on a small scale of the first repair department. Adjoining this secondary repair is a hydraulic press department for straightening castings.

The type of roller conveyor used is one developed primarily for handling green sand molds, but which has been found advantageous in the cleaning department as well. The conveyors are built in uniform sections 5 and 10 feet long and are interchangeable. The frames are made of rolled steel angles and bars welded together. The rollers are cold drawn seamless tubing cut into 20-inch lengths.

Machined on Inside

These pieces are machined on the inner surface at each end to receive the ball bearings and the bearings in turn are supported on ¾-inch cold rolled shafts. The device for fastening the roller assembly to the frame is such that a roller may be changed readily. Integral with the bearing case is a sand seal which excludes sand and grit and at the same time facilitates the retention of grease with which the bearing is packed. The lubricating system is such that the conveyors do not need attention for a period of two years or more after installation.

An important feature of any roller conveyor system for a foundry is the design of runners for the bottom of the boxes or boards which are to travel on it. Metal runners or battens are used throughout the Eastern Steel Casting plant and their accuracy is as important as the accuracy in the conveyor itself. The switches are made with small rollers set between rows of the full size rollers. The top surface of the small rollers is normally below that of the others, but where switching is desired a foot pedal raises them up above the large rollers permitting the box to be pushed at right angles to its line of travel on to the side conveyor.

Fig. 13—Castings are tested for surface alignment and are straightened in a hydraulic press

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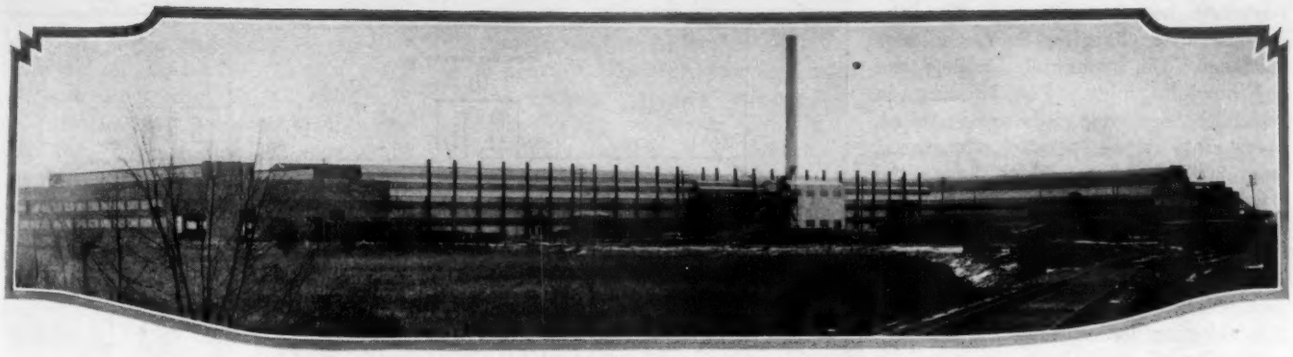
Offices of Colorado Fuel & Iron Co., are to be removed from Denver to Pueblo, Colo., July 1, where a new building is being erected at Bay State and Schley avenues.



Semicontinuous sheet mill plant of Newton Steel Co., Monroe, Mich.

Employs Semicontinuous Methods for Rolling Auto Sheets

Roughing and Finishing Mills Installed in Separate Trains Eliminate Backtracking—Side and End Scrap Handled in Basement

By John D. Knox

Associate Editor, Iron Trade Review

CONVERTING marsh land into a site suitable for a steel plant ordinarily is not a difficult engineering task. With modern roads available for the transportation of filling materials and of cement and aggregate for mill foundations, the transformation soon is effected. But when the steel plant acreage is so situated that the only access to the property is by water then the reclamation work has a different complex.

Such was the case when the preliminary construction work of the new plant of the Newton Steel Co. at Monroe, Mich., was undertaken in March, 1929. In spite of the many handicaps, however, the first reverberations of the hot mill rolls breaking down sheet bars and finishing packs into sheets echoed through the various buildings in Feb. 17, 1930, just 11 months after the first construction gang arrived. The plant is laid out for the production of 20,000 tons of automobile sheets monthly and later will be expanded to include open-hearth furnaces and blooming and bar mills. As the observer follows the sheets through the various processing steps he witnesses many new and radical departures from ordinary practice which make for flexibility.

The Newton company was induced to build its new sheet mill at Monroe, Mich., for several reasons. The city, located at the western end of Lake Erie about 25 miles north of Toledo, O., and 34 miles south of Detroit, offered excellent labor conditions; the subsoil lent itself favorably to mill construction; and the site afforded the transportation of raw materials and finished product to and from the mill both by rail and water. In fact, a car of sheets loaded at the mill in the evening can be delivered within the Detroit area the following morning.

Ground Level Raised

The mill site includes 565 acres which, as previously mentioned, was a marsh on the River Raisin between the shores of Lake Erie and Monroe. The level of the ground had to be raised 8 to 10 feet. No road led to the property nor was the River Raisin deep enough for lake boats to navigate.

As a result of this, the city of Monroe built a vehicle road east through the marsh to the mill site and the Newton company dredged the river to a depth of 18 feet and erected temporary docks. Sand from the dredging operation was brought in boats to the dock and distributed over the property by hydraulic pipelines.

Cement, aggregate, machinery and equipment were delivered in railroad cars within a mile of the plant site, transferred to scows and towed down the river by motor boats to the temporary docks. A network of narrow-gage track assisted in the transportation of materials to the job. Not a single pile was driven in constructing the mill foundations; nor were the contractors obliged to resort to blasting. All foundations penetrate a 4-foot sill and rest on hard pan.

Raw materials at present are delivered to the plant by rail. Within the near future, however, a harbor will be built which will permit incoming and outgoing shipments to be dispatched by water. Government engineers have approved preliminary recommendations for modernizing the port and the final survey has been completed. The new channel extending from the mouth of the River Raisin to deep water in the lake, approximately 1½ miles, will be 300 feet wide. A turning basin is to be built on the river about 2 miles from the lake and the river channel widened to 200 feet.

At the eastern end of the plant are five parallel buildings which, in

sequence, house the bar storage, the pair furnace charging floor, the pair furnaces, the roughing mills, and the finishing mills. The building, in which the finishing mills are installed, opens into three parallel structures, each 500 feet long, which house the finishing department, the box annealing department and the annealing furnaces. These buildings join with a building set aside for assorting and assembling which in turn parallels the shipping building at the western extremity of the plant.

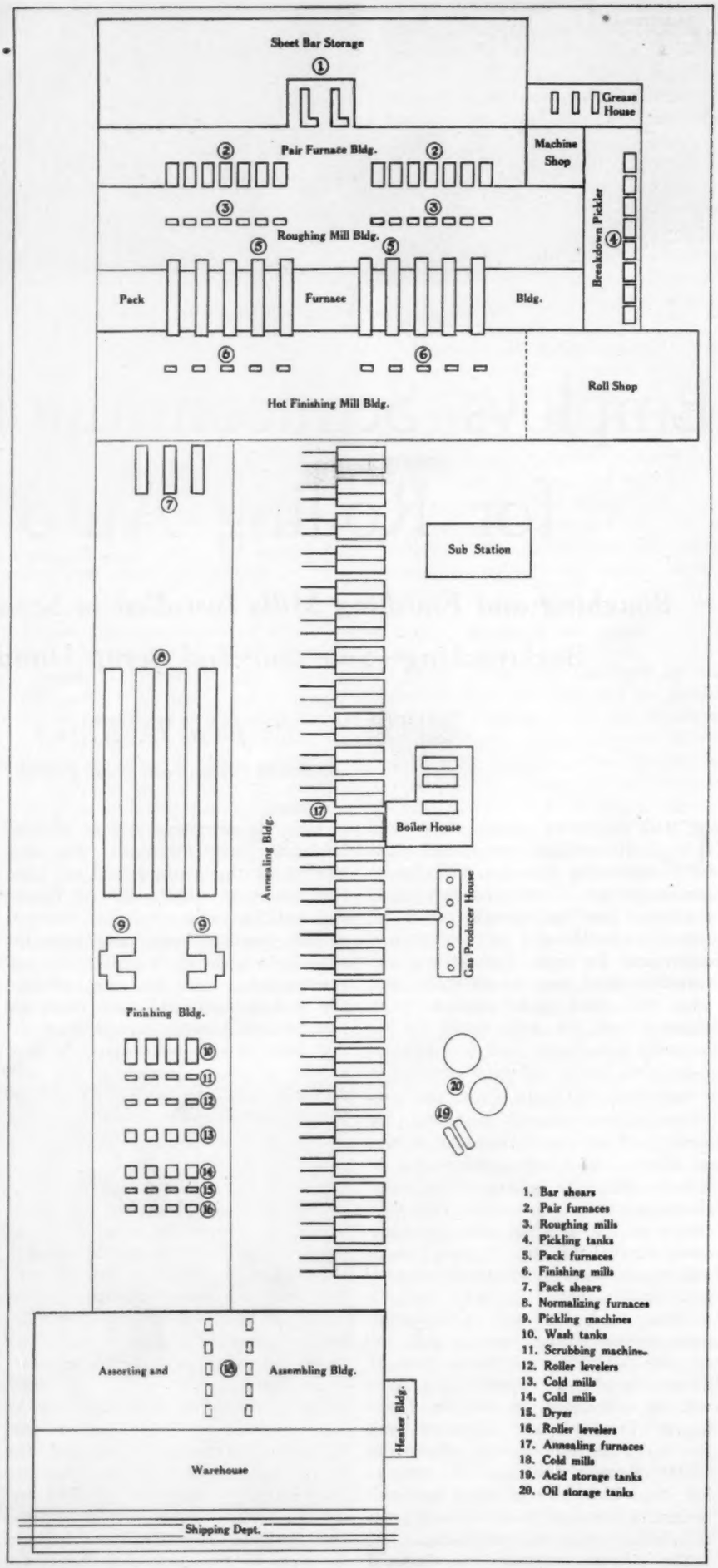
All buildings are constructed of brick, steel and galvanized sheets and the windows located in the sides of the various buildings or in the monitors are motor operated from the ground. Walkways are provided on the exterior and a car suspended from a monorail on the interior of all monitors to facilitate cleaning the various panes of glass.

Basements Are Provided

The feature of the buildings, however, is the system of basements beneath the hot mill, normalizing and annealing departments. Here all shearings, trimmings and roll neck drippings are handled, leaving the various department floors above clear of all hazards and clean. Moreover, all hot mill bed plate anchorage bolts are exposed and accessible. The basements are connected by a series of tunnels and it is through these that water, steam, air and fuel oil are piped to the various departments.

A color scheme has been adopted for all piping to avoid any mistake in case repair is necessary. All water lines are painted white, gas lines red, air lines yellow and acid lines green. Instead of locating the time clock in a centralized building where all workmen ring in and out each department has its own clock. These are located at the various department entrances, this arrangement affording an increase in the total time worked of 5 per cent.

The reader familiar with sheet mill practice undoubtedly will be impressed with the manner in which engineers of the Newton company have adopted modern sheet mill machinery and subsidiary equipment to effect flexibility and to establish continuous processing methods as far as it was possible to do so. Precedent was abandoned in many instances. In the hot mill department, as an illustration, a separate train of rolls is provided for roughing the bars and a separate train for finishing the packs. Ordinarily the roughing and finishing rolls are coupled together in the same train. But by segregating the two types of mills practically all backtracking of



the steel from the furnace to the rolls and from the rolls to the furnace is eliminated.

Sheet bars arriving at the plant in railroad cars are shifted into the bar shed over a standard-gage track and are unloaded by a 10-ton crane. A storage capacity of 18,000 tons of sheet bars is provided. The bars are cut into multiple lengths by two shears centrally located on the pair furnace charging floor and then are weighed. From the scales the bars are distributed to the respective pair furnaces serving the roughing mills. The pair furnaces are of the continuous type and are water shielded at the discharge end for the comfort of the mill crew.

The welfare of the men also was considered in laying out the roughing mill train which consists of 14 stands of 32-inch rolls. Two manholes, through which low-velocity air is pulled from the exterior of the building, are located at each stand of rolls and all standings are water cooled.

The steel in the process of reduction travels in a straight line direction from the bar yard until it passes through the roughing mill train. At this point in the process, however, the partially-rolled sheets are transferred to the breakdown pickling department housed in a separate building at the south end of the roughing mill building. Eight rectangular tubs for pickling and washing are provided, the solution being air agitated. After the sheets are dipped in a slurry of charcoal which prevents sticking during subsequent rolling, they pass over a scale and are returned to the finishing mills. Here they are made into packs of two or three sheets depending on the specifications and are reheated.

Straight Course Followed

No backtracking is apparent in heating the roughed-down pickled sheets preparatory to rolling on the finishing mill. The pack furnace has changed all this and has injected new life into sheet mill practice. Sheetmakers long have awaited the development of such a unit, something that would permit a continuous flow of material through the finishing rolls and at the same time permit the employment of the conventional type of 2-high mill. The pack furnace not only provides this benefit but goes a step further. It effects a substantial reduction in the lost-time area by keeping the rolls occupied a greater percentage of the time and hence affords increased production. In fact, at the Monroe plant where the 10 finishing mills are served individually by pack furnaces, 30 tons of sheets are heated and finish-rolled per mill in 8 hours. A 2-high finishing mill under ordinary practice will deliver 10 tons during an 8-hour turn.

Each pack furnace is 51 feet long. A bridgewall, running lengthwise on the interior, separates the combustion chamber and the heating chamber. Producer gas, fired into the combustion chamber at the charging end of the furnace, passes through flues at the top of the bridgewall into the heating chamber. The gas leaves the furnace at the discharge end, passing into a recuperator installed above the discharge door and thence to the stack. Cold air, supplied by a motor-driven fan, is passed into the plate-type preheater and is delivered through an insulated pipe to the burner at a temperature ranging from 500 to 550 degrees Fahr.

Vertical Fingers Carry Sheets

Each pack of three or four sheets, depending on the gage the mill is rolling, is carried in turn through the heating chamber by two rows of fingers. These are rounded at the top to prevent marring the surface of the sheet where contact is made. Each row of fingers is linked together to form a chain which moves over idler rolls beneath the hearth brickwork and passes over sprockets at the entrance and exit ends of the furnace. The sprockets at the discharge end are driven through reduction gears by a 10-horsepower motor. When a roller wants a heated pack he steps on a treadle located at the mill standing. This actuates the motor and causes a pack to be delivered to a gravity conveyor leading to the finishing rolls nearby. The conveyor in the furnace continues in motion until the next pack strikes a trigger when its movement is arrested until the trip again is pressed.

Automatic control provides a pack temperature ranging from 1350 to 1375 degrees Fahr. This is accomplished by a thermocouple located in the sidewall of the furnace about 10 feet from the charging end. The thermocouple is connected with a potentiometer which transmits the electromotive forces to a solenoid. This is an electrodynamic spiral so made as to have the effect of a series of equal and parallel circular currents. When the current from the potentiometer traverses the solenoid the latter acts in general like a magnet and operates a butterfly valve, thus controlling the amount of air delivered to the burner. The greater the amount of air passed to the burner, the greater is the volume of gas aspirated and vice versa. Hence the temperature to which the packs are heated is controlled uniformly.

Heated packs are conveyed from the pack furnaces to the finishing mills by gravity passing between two streams of compressed air which blows any scale or foreign matter from the top and bottom surfaces. Ten 30-inch finishing mills are provided. These, as previously mentioned, are coupled in a separate train and are designed to deliver sheets from 18 to 76 inches wide. The mills are driven by a 2000-horsepower motor. Controls for both the roughing and finishing mill motors are housed in a separate building located midway between each drive. Air for both motors is filtered and force fed by motor-driven fans.

Grease which drops from the roll necks while the mills are in operation or when the rolls are being changed at the end of the week, is chuted to containers located in the basement. The containers, when filled, are transferred to the south end of the bar shed and the chunks of grease dumped into a skip which discharges into a large steel hopper in the grease house.

Sheets delivered from the hot mills are transferred by crane to the shearing department located in the eastern end of the finishing floor. At first sight the department seems bare from the standpoint of equipment. Only five shears are visible. Two are used solely for making cutdown sheets and for retrimming stock; the remaining three handle the output of the ten hot finishing mills and are known as pack shears. Instead of the sheets being trimmed singly, as frequently is done with the usual type squaring shear, they are trimmed in packs of threes or fours. Each pack shear requires three operators and is capable of handling as much tonnage as is sheared by 12 men in the ordinary sheet mill.

Shear Widths Variable

Each pack shear in reality is a group of four shears, two for trimming the sides simultaneously and two for trimming the ends. The distance between the side shears and that between the end shears can be varied to conform to the width and length of orders going through the mill. Each pack is conveyed lengthwise into the side-cutting shears and when the proper position between the knives is reached the conveyor automatically stops. The shears are actuated automatically and trim both sides of the pack simultaneously. The conveyor then carries the pack ahead to the end-cutting shears. An electric switch located on the shear bed con-

trols the amount of steel that is trimmed from the front end of the pack. After the front end has been sheared the switch remains disengaged while the pack is being conveyed to the back gage. Here an electric contact brings the conveyor to rest and causes the shear to trim off the rear end of the pack. Meanwhile, another pack enters the side-cutting shears. Thus the process not only is continuous but affords increased production and a substantial decrease in labor costs.

In spite of the many hundred tons of steel that pass through the shears daily not a piece of scrap is to be seen around the machine. When the cut is made the side and end scrap immediately drops to the base-

Makers of Principal Equipment

Roughing, finishing and cold mills, spindle carriers, shoe-plate, stretcher leveler, trimming shears	Hyde Park Foundry & Machine Co., Hyde Park, Pa.
Rolls	United Engineering & Foundry Co., Pittsburgh.
Drives, pickling machines	Mesta Machine Co., Pittsburgh.
Rolls, roll lathes	Lewis Foundry & Machine Co., Pittsburgh.
Gas producers	Wellman Engineering Co., Cleveland.
Roller levelers	McKay Machine Co., Youngstown, O.
Pack shears	Streine Tool & Mfg. Co., New Bremen, O.
Motors	General Electric Co., Schenectady, N. Y.
Cranes	Alliance Machine Co., Alliance, O.
Normalizing furnaces	Duraloy Co., Pittsburgh.
Pair furnaces	George J. Hagan Co., and Costello Engineering Co., Pittsburgh.
Pack furnaces	Wean Engineering Co. Inc., Warren, O., and Flinn & Dreffein Co., Chicago.
Roll grinder	Landis Machine Co., Waynesboro, Pa.
Air compressors	Worthington Pump & Machinery Corp., New York.
Electric controls, stokers	Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Boilers	D. Connelly Boiler Co., Cleveland.
Engineering	Arthur G. McKee & Co., Cleveland.
Electric roll heaters	Freyn Engineering Co., Chicago.
Scrubbers	Aetna-Standard Engineering Co., Youngstown, O.

ment where a chute discharges it onto a conveyor leading to two baling presses. The compressed scrap is ejected automatically onto an inclined conveyor, passes out of the building and is loaded into cars to be consigned back to the open-hearth for remelting.

Following the shearing operation the sheets pass over a scale for tonnage recording. A certain percentage of the sheets are box annealed to satisfy customer requirements but by far the largest portion of sheared sheets are normalized to secure high-grade drawing qualities. Four furnaces located on the finishing floor are provided for administering this particular treatment. The units are oil fired, the fuel being piped from two 2500-barrel storage tanks located south of the annealing furnace building. Each furnace is built with a roller-type hearth, 84 inches wide and 155 feet long. The first 75 feet is the heating zone and the last 80 feet, the cooling zone. The roof, built in 5-foot sections, permits the length of the cooling zone to be altered so that the sheets may be subjected to the required cooling cycle. Or, certain sections may be removed in case the sheets are to be air quenched.

The speed of the sheets in transit through the normalizing furnaces and the temperature, to which the sheets are heated, are controlled by the metallurgical department. Both are recorded on charts which become a part of the company's record for reference in case the customer desires a repeat order.

As the sheets are delivered from the normalizing furnaces they are loaded into crates and are transferred by lift trucks to the pickling department located in a continuation of the finishing floor. Here two pickling machines of the radial-arm type are installed. Following the pickling operation, the continuity of processing again is resumed. The sheets are conveyed singularly through a wash tank and thence through a scrubbing machine. The acid fumes, which arise as a result of the scrubbing treatment, are led underground to an outside exhausting system. From the scrubbing machine the sheets are skewed into a roller leveler and then belt fed in turn through two cold mills arranged in tandem. The last stand delivers the sheets into a drier where hot air eliminates any moisture from the top and bottom surfaces. The sheets finally pass through another series of leveling rolls and are piled on industrial cars.

At this point in the process the sheets either are taken to the shipping department or are box annealed to relieve the hardness imparted by the two cold rolling passes. If the steel is to be annealed it is transferred to the department set aside for this purpose where 50 box-type furnaces are installed. These are housed in a building paralleling the finishing floor. The sheets are stacked on the annealing trays and thermocouple wires inserted near the top of the pile to assist the operator in subjecting the steel to the proper heat cycle. The box is capped, hoisted on an electrically-driven charging machine of the floor type by a 50-ton crane and moved into the annealing compartment.

The entire battery of 50 furnaces is fired with producer-gas provided by five mechanical units. These are housed in a nearby building. Ashes from the various producers are elevated to a large steel storage hopper which discharges either into railroad cars or automobile trucks. A chart hung at the entrance of each annealing furnace, instructs the operator how high a temperature to subject the steel, the time required to bring the charge to the desired temprature, the cooling cycle, the deoxidizing data, etc. Incidentally, all sheets to be deoxidized are given this particular finish by the use of washed producer-gas. Following annealing, the sheets are piled on industrial cars and are delivered through a door at the western end of the annealing department into the assorting and assembling building.

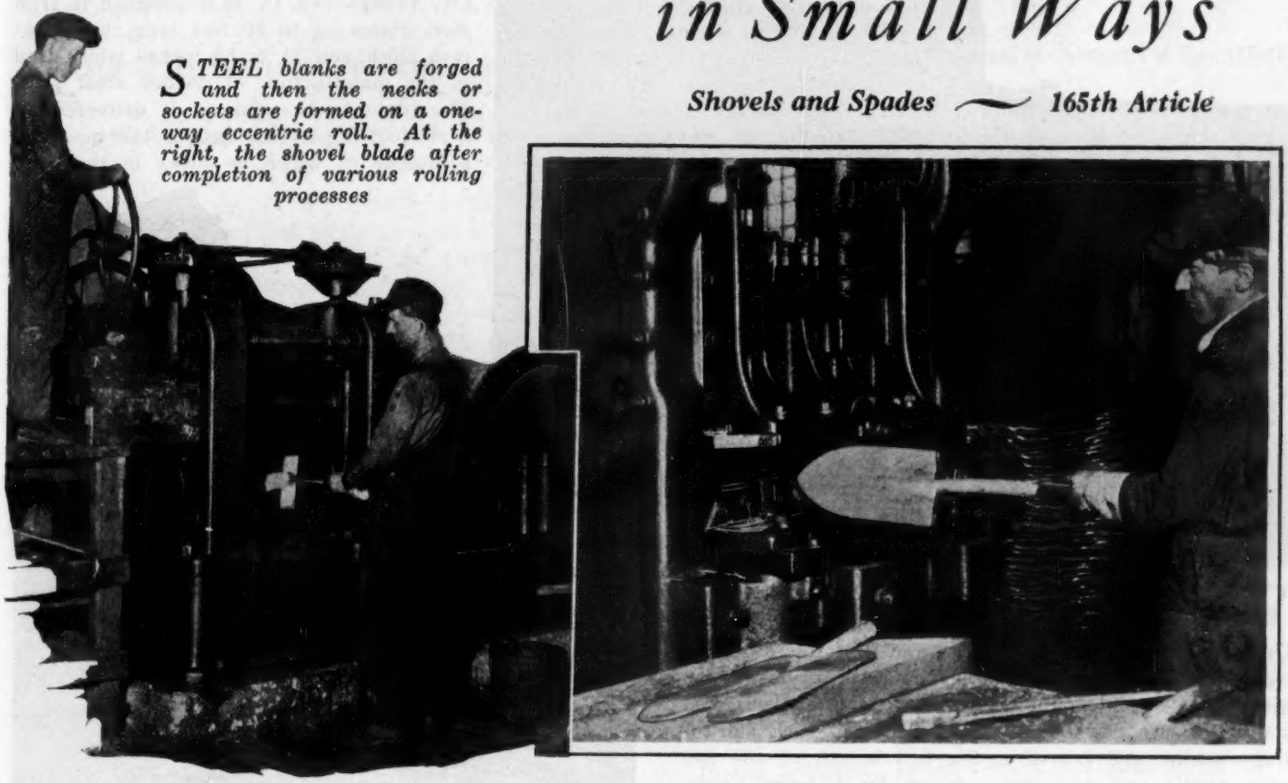
Cold Rolling Completes Process

In this department the sheets are given the final planish by cold rolling, two trains of five stands each with rolls varying from 54 to 84 inches wide, being provided. Each train is driven by a 500-horsepower motor. Roller and stretcher levelers also are provided to handle such orders as call for these additional treatments. The sheets then are passed through an oiling machine to protect the stock from corrosion while in transit to the customer; inspected; stenciled with the company's trade mark, test number and inspector's number; and transferred over a scale to the shipping department.

Sheets are shipped either in box cars or gondolas which are spotted on separate tracks along the west side of the shipping department. The tracks have a combined capacity of 16 cars and are depressed to facilitate loading. Sheets coming from the finishing department are piled on the shipping floor and are cleated into bundles of a definite weight. Those to be shipped in gondolas are wrapped with weatherproof paper and loaded by crane; those to be shipped in box cars are trucked from the shipping floor into the respective cars.

Large Uses of Steel in Small Ways

Shovels and Spades — 165th Article



STEEL blanks are forged and then the necks or sockets are formed on a one-way eccentric roll. At the right, the shovel blade after completion of various rolling processes

MECHANIZATION of material handling processes has had an adverse effect on the market for hand shovels, but the declining trend in shovel production recently appears to have been halted and to have assumed an upward movement. An expansion is noted in requirements for shovels for domestic purposes. Oil and gas furnaces so far have made only moderate inroads in the market long held by the coal-burning type, while stokers for household furnaces offer no serious threat to the supremacy of the shovel in the average American cellar.

Mechanical conveyors and material handlers have displaced the hand shovel to a certain extent in industry, but here, too, the expansion in plants and in construction has served to offset this lost market.

Considerable Steel Used

Shove production offers a substantial market for steel consumption, accounting for about 15,000 tons annually based on an estimated output of 650,000 dozen shovels. Shovel production includes a variety of types. The leading ones listed in the order of their relative importance, are as follows: Track or dirt shovels, railroad scoops, grain scoops, long handle digging shovels and snow shovels. Other types include post spades, drain spades, telegraph spoons, ash pan scoops and sidewalk scrapers.

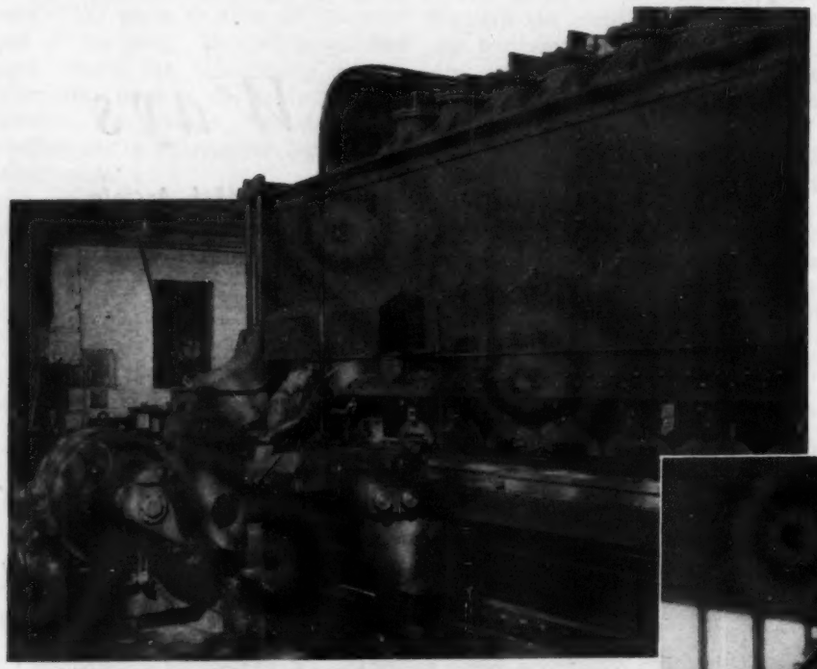
Shovels usually are made from steel sheets or are rolled from steel bars. The former practice predominates, accounting for all but about 4000 tons of the annual steel consumption, and consisting of a stamping and forming operation. A short time ago an Alton, Ill., company introduced into this country a method for rolling a ½ x 4-inch steel bar into form, and shovel production by this system steadily is expanding. This method produces the blade and socket in one piece, eliminating the necessity for riveting or welding together the two pieces and giving a section which is claimed to be tougher and better adapted to heat treating than the stamped variety. More than one-half of the shovels produced are heat treated. High carbon or alloy steel generally is used, nickel or chrome-molybdenum being the usual grade of alloy.

In the rolling process for making shovels 16 operations are performed. The first step blanks out a section which is then forged on a small drop forge. The neck or socket then is rolled on a one-way eccentric roll, after which this section is sheared to size and punched to take the rivets which fasten it to the handle. The socket finally is necked and formed. The blade next is worked on a break-down roll and a finished roll. Two shearing operations cut the blade to size, after which it is formed and ground. The shovel handle then is assembled and the blade is polished.

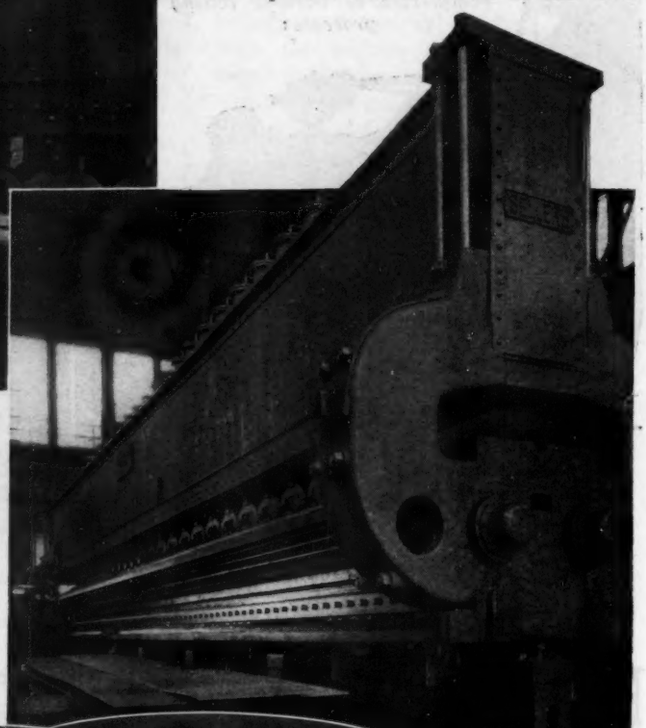
Rivet Consumption High

Handles and rivets take an additional tonnage of steel. Pressed steel handles in some instances are used instead of wooden ones, except for the long-handle type. At least two small rivets are used in securing the handle to the blade. On the type that has the blade riveted to the shank as many as six rivets are required. This means an annual consumption of more than 24,000,000 small rivets in the shovel industry. One long rivet is used to fasten the cross bar piece on the U-shape handles.

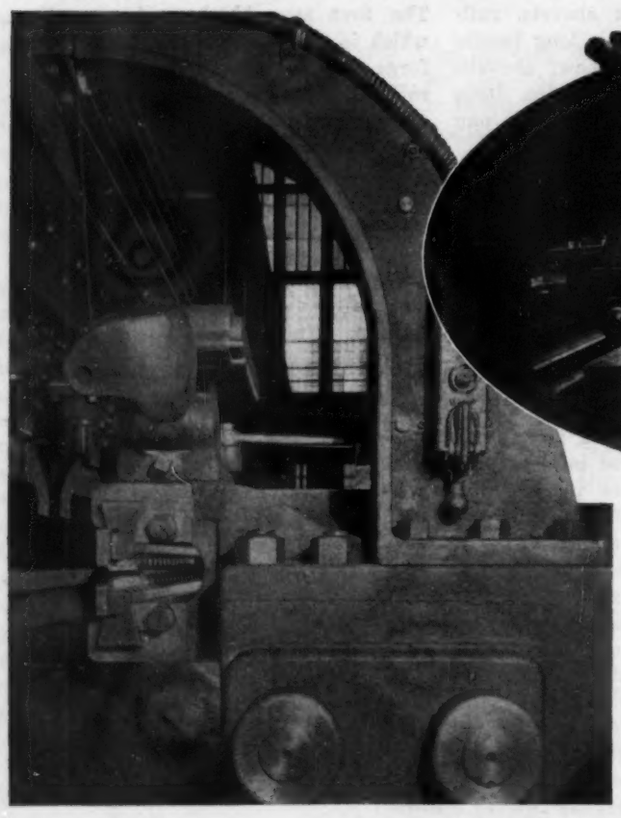
Large Machine Will Trim 50-Foot Plates

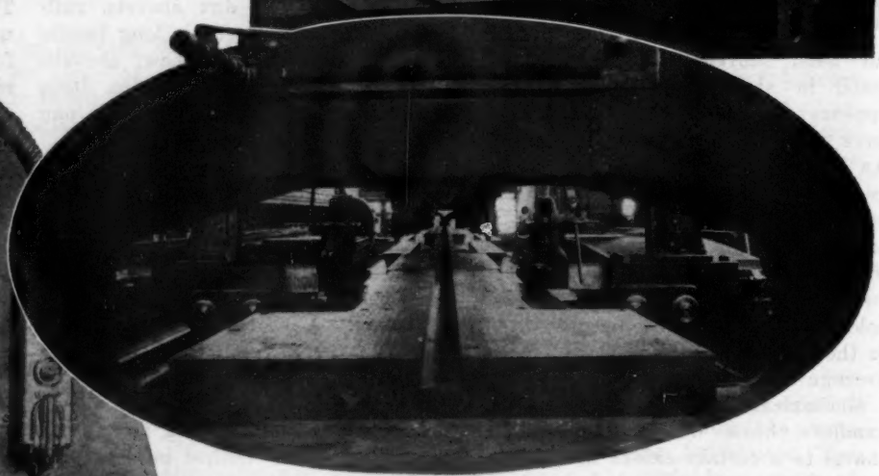


THIS large plate trimmer was built recently by William Sellers & Co. Inc., Philadelphia, for the Republic Iron & Steel Co., Youngstown, O. It is designed to trim steel plates up to 50 feet long, ¼ to ½-inch thick and 31 to 55 inches wide, used in the manufacture of welded steel pipe. The plate to be trimmed is delivered on a roller table at one end of the machine, a closeup of which is shown in the oval.



WEIGHT of the machine is 315,000 pounds; length, feet 4 inches; and the height, 13 feet 2 inches. Drive is through a 250-horsepower motor. Essential elements are a long cast-iron bed with a deep steel girder above containing the clamping mechanism, consisting of two rows of 25 air jacks. On each side of the machine and traveling the full length of the bed is a saddle and tool slide, driven by a large screw, shown in the illustration above, and equipped with two rows of 16 tools, above and below the plate.





AT THE left is shown a view of the tool slide, showing the rows of cutting tools. The bed of the machine, shown in the oval above, is made in two sections, bolted together. The top surface is covered with renewable hardened and ground steel plates on which rest long adjustable steel blocks. To reduce the sliding friction when the plates are drawn into position, these blocks are equipped with a series of steel balls, 52 in all, extending slightly above the surface. They are supported by springs so that when the clamping pressure is exerted on the plates from above the balls are depressed slightly.

Welding Society Adds Theory to Practical Research Work

Active Discussion at Annual Meeting of American Welding Society Centers on Weld Design and Distribution of Stresses—New Officers Elected

SEVERAL papers on the theory of the stresses and strains in welded joints brought a new note into the annual convention of the American Welding society at the Engineering Societies building, New York, April 23-25. Prof. C. A. Adams, Harvard Engineering school, Cambridge, Mass., heralded this emphasis on theory as one of the important developments in the society's history. He stated that an engineer with sound theoretical knowledge would be able to make better designs of welded structures. Another feature of the program was sessions on welding in building construction. E. A. Doyle consulting engineer, the Linde Air Products Co., New York, was elected president to succeed F. T. Llewellyn, research engineer, United States Steel Corp., New York, who retired after two years in office. Other officers were elected as shown in the accompanying box. The annual dinner was served Thursday night and was unusually well attended. The American Bureau of Welding, the research department of the society, held its annual meeting and technical session on Friday afternoon.

Theoretical Strength Is Lower Than Actual

CLOSER association between theory and practice in welding design was urged at the first technical session at which H. L. Whittemore, vice director, American bureau of welding, and materials engineer, National bureau of standards, Washington, presided. Active discussion followed this session and centered around the paper on distribution of stresses in fillet welds presented by L. C. Bibber, bureau of construction and repair, navy department, Washington. This paper was confined to fillet welds and according to the author was offered as an introduction to what he hoped would be a complete theoretical investigation made by the society.

Metal Contact Unimportant

In general, Mr. Bibber found that theoretical values, closely approximate actual test values for strength of welds in practical use. If anything, the theoretical values were a little lower and thus could be safely used in design. Much of the discussion of Mr. Bibber's paper confirmed his statement of relative unimportance of metal-to-metal contact in lap welds. The theoretical investigation indicated but slight reduction in strength in cases where the faying surfaces were separated by ¼ inch or more. J. W. Owens, director of welding, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., told of the difficulty encountered with inspectors of welding work concerning this one point of separation of the faying surfaces. He said that most inspectors insisted upon intimate contact and often tested this with thin pieces of paper. He said some inspectors felt that contact with welded members was more important than with riveted. Others agreed that no particular harm resulted from a separation of the faying surfaces in welded construction. Further investigation and much educational work covering this particular point was urged, as it was felt that a different attitude on the part of inspectors would help in reducing the cost of welded construction.

Equilibrium Equations Debated

C. H. Jennings, research department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., expressed a difference of opinion concerning certain equilibrium equations in Mr. Bibber's paper. E. A. Doyle said that he thought modifications of the usual fillet design of welds were advisable in certain cases and that any complete theoretical investigations should cover such modified sections. He advised more extensive use of a section such as that shown in Fig. 1. Other discussion covered questions of ductility of the welded metal, the necessity of considering the strength of welded metal in theoretical work, the increase in strength of welds due to penetration, and of the statement that in most work the full strength of the weld is not required in design. Mr. Owens said that he had found in actual tests

New Officers

AMERICAN WELDING SOCIETY

President
E. A. DOYLE
Consulting engineer, Linde Air Products Co., New York

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F. P. MCKIBBEN
Consulting engineer, General Electric Co., Black Gap, Pa.

Vice President New York-New England Division
C. W. BABCOCK
Sales engineer, Westinghouse Electric & Mfg. Co., Boston

Vice President Middle Eastern Division
W. W. BARNES
Air Reduction Sales Co., Philadelphia

Vice President Middle Western Division
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Swift Electric Welder Co., Detroit

Directors
J. J. CROWE
Air Reduction Sales Co., New York
W. H. GIBB
Thomson-Gibb Electric Welder Co., Bay City, Mich.
H. S. SMITH
Prest-O-Lite Co., New York
W. C. SWIFT
American Brass Co., West Alexandria, O.

with a joint similar to that shown in Fig. 2, that a brittle deposit for the fillet weld gave higher strengths than when more ductile weld material was used. Prof. Adams made the interesting comment that a fillet weld on a lap joint might even be stronger when the members were slightly separated, as indicated in Fig. 3. He said that in cooling the hot metal of the weld shrinks and that is apt to set up tension strains in the weld when the members are in intimate contact. These strains would not be present if the shrinkage was against the more yielding condition of separated members. He said also that there might be better penetration at the root of the weld when the members were slightly separated.

The sessions devoted to welding in building construction were well attended and provoked active discussion. W. P. Miller, metallurgist, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., spoke of the dangers of fatigue tests of welds. These tests which frequently call for 10,000 alternations of stress may open a slight fissure, undetectable at the time, but nevertheless offering a weak point for the start of further difficulties, he said. The familiar hammer test received much criticism and several engineers said they regarded the test as having little value. One of the chief objections to the hammer test was the lack of uniformity in applying the test. F. R. Low, editor, *Power*, New York, pointed out that mechanical hammer tests had been developed to insure uniformity and he suggested a combination of pressure test and hammer test.

Difficulties Are Cited

Several inspectors told of the difficulty of their work. One speaker stated it was almost impossible for a welder to produce uniformly good welds continuously and it was the inspector's job to detect the perhaps few times when his work might fall below standard. Another inspector suggested drilling the test welds so as to cause failure in the weld and thus develop more information concerning the welds than when failure occurred elsewhere. The need for better trained welders was again voiced by several of those who discussed inspection of welded work in building construction. Mr. Owens believed requirements for welders were too low. He said that at the Newport News Shipbuilding & Dry Dock Co. plant all welders were required to submit three specimens of welding, one done in the flat position, one in the vertical position and one in the overhead position, and of these three specimens none was to show a minimum below 47,000 pounds per square inch.

Properties Are Important

Discussion indicated that steel specifications should cover either chemical or physical properties but not both. No steel mill will supply material to meet both chemical and physical specifications. Lack of knowledge exists concerning ductility of welds in practice. Study is needed to determine the proper form for welds. One speaker said that it was better wherever possible to design V welds with flush surfaces. He stated that with reinforced welds the stresses were eccentric. Another said that the goal of welders is to have the welds stronger than the base metal and he told of welds which had already been made with a strength of 100,000 pounds per square inch in the weld itself. E. H. Ewertz, consulting engineer, New York, argued for better education among designers of welded structures. He said there were still cases of mistakes in design based on the practice followed with riveted structures.

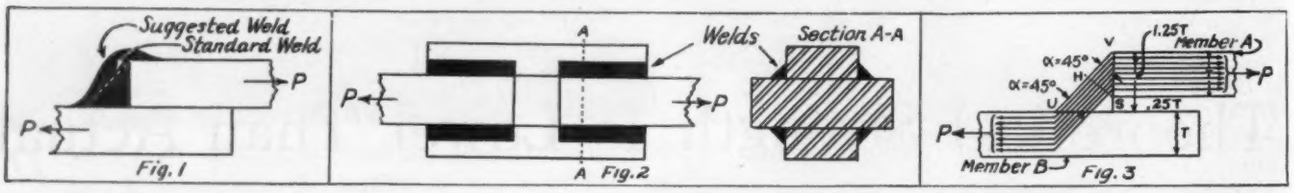
An interesting paper describing the use of welded piping in the so-called "panel heating" was read by R. A. Wolff, Wolff & Munier Inc., England. This method of heating is used at the British Embassy, Washington, and consists of embedding coils of pipe in the ceiling or walls of the building, thus eliminating the usual radiators.

Another paper in the field of building construction was that of Lee H. Miller, chief engineer, American Institute of Steel Construction, Cleveland, on the subject of battledeck welded floors, This type of floor construction has literally been adopted from the design of boat decks, but according to the speaker it is simple and well suited to nearly all types of buildings. With the development of welding it is possible to make a simple and economical all-steel floor by placing I-beams on 24-inch centers and laying plates over these in such a way that the joints between the plates occur over the center of each I-beam. The plates are left about ¼-inch apart and the space is filled by welding. Battledeck type floor construction was described in detail in the May 23, 1929, issue of IRON TRADE REVIEW.

By this method Mr. Miller said it was possible to reduce the dead load carried by the columns of a building by 25 to 30 per cent. He said that at present in a modern steel building the dead load often was as much as two-thirds of the total load. For ordinary floor construction he advised the use of 3/16-inch steel plate and said that such a floor would stand a uniform distribution of weight of 500 pounds a square foot. He described a warehouse where the floors were designed for 3000 pounds a square foot with this type of floor and with ⅝-inch steet plates. Under such a design the plates act as a suspension system and the I-beams are used chiefly for stiffness. He said that steel floors now offer the most important potential market for welding as well as for the use of steel plate. A market for the steel industry of more than 5,000,000 tons per year is open at the present time in floors of new buildings if the battledeck design will be used, according to Mr. Miller, who looks forward to an annual use of from 8,000,000 to 10,000,000 tons of structural steel for floors of buildings.

Plate Must Be Flat

One of the questions which caused considerable discussion was the actual method of holding the plate flat while welding was in process. Mr. Miller said that several steel mills were now at work on the development of plates which would lie flat. If the steel mills would only realize the importance



Suggested modifications for the design of fillet welds. Fig. 1—Lap weld suggested by E. A. Doyle in which fillet is increased and changed in contour. Fig. 2—Butt-type weld suggested by J. W. Owens was said to show increased strength. Fig. 3—Lap weld suggested by Prof. C. A. Adams with members slightly separated

of the market he thought they could solve this problem of warped or buckled plates. In the meantime it may be necessary to fasten the plates at intervals by tack welding. C. W. Werst, assistant to vice president, Baldwin Locomotive Works, Philadelphia, was much interested in the development of flat plates for use in locomotive work. He said his company had much trouble in building up welded water tanks because of buckled plates. He told of the change in design of locomotive bodies and the influence of the automotive industry. People now demand a nice looking job on a locomotive the same as on an automobile.

A return to theoretical discussion was made Thursday afternoon with the paper by C. H. Jennings and A. A. Jakkula, research department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. This paper described the theoretical stresses set up by welded connections between beams and columns.

See Future for Welded Barge

Friday morning E. H. Ewertz presented an interesting illustrated paper on the construction of a new type of all-welded barge which requires less welding than some of the existing types. Those discussing this paper were enthusiastic over the future of the welded barge. A representative of the Federal Shipbuilding & Dry Dock Co. stated that nine completely welded barges had been built by his company and that the design used was such that nearly 75 per cent of the welding was done on automatic machines. He said with the increased cost of wood and the better engineering and lowered cost of welded steel barge construction, he expected to see practically all barges of welded steel design within four or five years. Certainly he stated, this would be true of the larger sizes of barges.

W. P. Curley, manager, New York district, Tube Turns Inc., New York, told of a special method of forming seamless pipe fittings for welded construction. Seamless tubing of smaller diameter than that of the finished fitting is turned into the curved form by use of a special mandrel and dies in such a way that the material flows away from the inner radius and is taken up by the increase in diameter. The result, he said, is a fitting of uniform wall thickness. Concerning wrought iron turns, he said that his company had been unable to obtain seamless wrought iron tubing and that it was necessary to have seamless tubing in order to start the process. He said turns can be made of almost any seamless tubing. A 5-inch tube is used to make a 6-inch fitting.

Abrasive Grain Sizes To Be Standardized

Manufacturers of grinding wheels and electric furnace abrasives will hold a general conference at the bureau of standards, Washington, May 8, under the auspices of the division of simplified practices, to consider the adoption of a standard list of abrasive grain sizes. The manufacturers have been working on the list for five years. The conference will discuss the procedure for establishing a simplified practice recommendation, history of the project, tentative simplified practice recommendation as developed by the industry, adoption of tentative simplified practice recommendation as proposed or as may be modified, and establishment of an effective date from which the recommendation shall be effective for new production, appointment of a standing committee to sponsor the recommendation and to take care of any revisions which may appear necessary in the future, and standard samples of the grain sizes.

Discusses X-Ray Studies of Rolled Metals

Over 90 metallurgists and research engineers associated with various aluminum, copper and steel companies attended a lecture on X-ray investigation of metals delivered by Dr. G. L. Clark, professor of chemistry, University of Illinois, Urbana, Ill. in the assembly room of the Dollar Savings & Trust building, Youngstown, O., April 25. Following the morning session those in attendance were guests of the Cold Metal Process Co., at a luncheon held in the Youngstown club.

Dr. Clark pointed out that X-ray enables the observation of the interior of solid objects for gross inhomogeneities and extends the scope of fine structure analysis far beyond the microscope down to the ultimate architectural pattern of atoms in space.

When metals are worked by rolling or drawing, he explained, they become fibered. Aggregates in which the crystal grains have random orientation assume in the process of mechanical deformation a structure in which the grains assume a definite orientation with respect to that of rolling or drawing. In wire drawing, Dr. Clark stated, the flow of metal in the direction of drawing occurs only in the middle of the wire, whereas the wall of the metal is flowing inward as well as along the length of the wire and the crystal grains are thus disposed at an angle to the core. Crystal grains in a rolled sheet not only take up positions with a crystallographic direction parallel to the direction of rolling, but are further limited by having certain crystallographic planes parallel to the plane of rolling and to the transverse direction.

The afternoon session was devoted to the open discussion of the merits of straight rolling and of combined rolling and drawing insofar as these processes effect the product. At the close of this session many of the guests witnessed the Steckel-type mill in operation at the plant of the Cold Metal Process Co.

Correction Is Made in Steel Earnings

In the compilation of earnings of leading steel companies which appeared in the April 24 issue of IRON TRADE REVIEW, current liabilities of the United States Steel Corp. as of Dec. 31, 1929, were incorrectly given. They should have been $121,358,042. This makes aggregate current liabilities of the 21 companies included in the compilation $261,313,602.

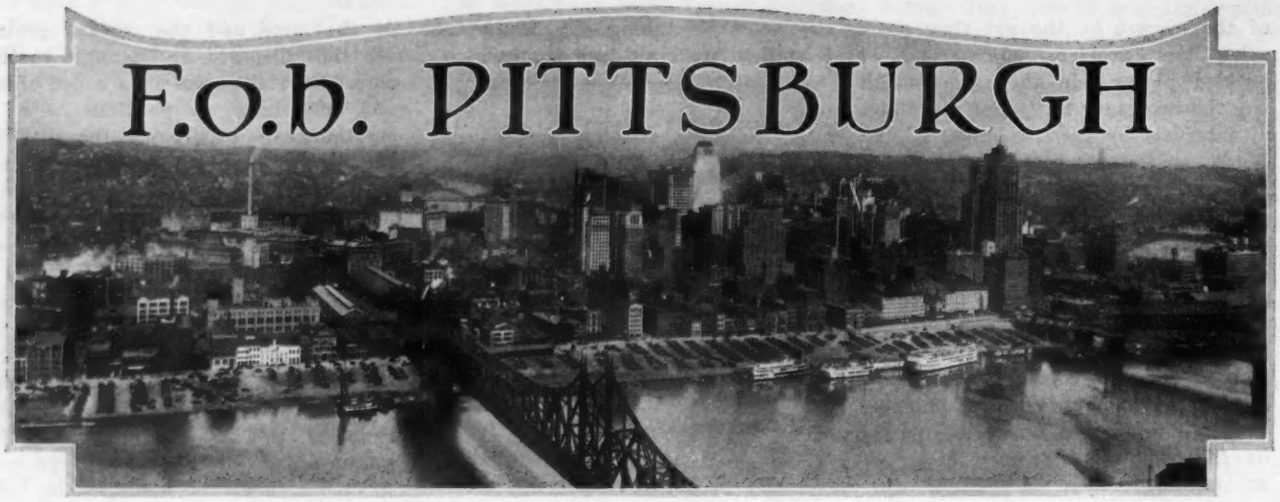
Current assets at the close of 1929 amounted to $1,293,772,453, an increase of $110,795,912, compared with $1,182,976,541 one year before, a gain of more than 9 per cent. Current liabilities increased a little more than 12 per cent, or from $244,221,623 as of Dec. 31, 1928, to $261,313,602 as of Dec. 31, 1929.

As of Dec. 31, 1928, current assets exceeded liabilities by $958,754,918. On the corresponding date of 1929 the excess had increased to $1,032,458,851 despite the somewhat higher ratio of current liabilities to current assets, which resulted from the sudden trade recession during the closing months of last year.

With total assets of 21 leading companies at the beginning of 1930 standing at $4,652,818,542 and current assets exceeding current liabilities by more than a billion, the industry, it is shown, entered the new year in a strong financial position.

Orders Slabbing Mill

Illinois Steel Co., Chicago, has awarded a contract for a 60-inch slabbing mill to the Mesta Machine Co., Pittsburgh. This mill is a part of a large improvement program which the United States Steel Corp. is undertaking in the Chicago district.



Pittsburgh Putting $170,000,000 Into Expansion

* * * * * * * * *

Electrifying Mills Major Industry; Coal Still Lags

PITTSBURGH, April 29

INDUSTRY'S recent and prospective investment in plants and equipment in the Pittsburgh district continues to grow. About $170,000,000 is represented in the larger programs of expansion and improvement carried on during the past year and currently under way, the latest addition to the list being a $21,000,000 expenditure by the Jones & Laughlin Steel Corp.

Several million dollars of this total was spent last year on a battery of 81 by-product coke ovens, enlargement of blast furnaces and improvements of electric power facilities. Most of the remainder of this sum is expected to be spent on new plants, either at Aliquippa, where land is available, or at the company's Chicago property.

Jones & Laughlin currently devotes the bulk of its capacity to the production of the heavy steel products, lacking in sheet and strip producing facilities, and it is possible that plans for a strip mill will be included in the current program.

* * *

THE list of plant expenditures for this district is well diversified among various industries. Jones & Laughlin and National Tube Co. lead the iron and steel companies, followed by A. M. Byers Co., Weirton Steel Co. and American Steel & Wire Co., the total for the steel list being about $60,000,000. The Duquesne Light Co. this summer will complete the first $10,000,000 unit of a $40,000,000 program.

The Bell Telephone Co. is spending $7,900,000. The Pennsylvania railroad recently completed a $12,000,000 freight yard and has plans for a $20,000,000 passenger terminal. Westinghouse is erecting a $1,500,000 engineering laboratory at East Pittsburgh. The Gulf Oil Co. will occupy a large portion of the new 40-story $10,000,000 office building it now has under construction.

* * *

GROWTH of the steel industry in the Pittsburgh district has been attended by a similar expansion in a number of other local industries that have assumed a like importance and that have considerable in common with iron and steel. Many of Pittsburgh's industrial companies can trace a large portion of their success to the growth in steel production just as steel producers have benefited materially as the result of the activity of these allied and nonallied organizations.

Westinghouse Electric & Mfg. Co., Harbison-Walker Refractories Co., Westinghouse Air Brake Co., Union Switch & Signal Co., Koppers Co., the machinery builders such as Mackintosh-Hemphill & Co., Mesta Machine Co., United Engineering & Foundry Co., and Pittsburgh Screw & Bolt Corp., all leaders in their respective fields, are dependent in a large measure upon steel and the steel industry, while the steel industry has a similar interest in their achievements and prosperity.

* * *

WESTINGHOUSE ELECTRIC & MFG. CO., next to steel, probably is most synonymous of industrial Pittsburgh. Located in the heart of the steel industry, it is but natural that the company has been active in the development of equipment that has been of great value in bringing steelmaking and steel rolling to its current plane of efficiency.

Organized in 1886 as the Westinghouse Electric Co. to take over the electrical inventions of George Westinghouse, the company has grown to an organization operating 24 plants located in 22 American cities, employing 47,000 people, manufacturing about 4000 different products and doing an annual business of approximately $200,000,000. Sales last year set a new high record of $216,364,588. Its various offices, factories and warehouses occupy a total floor space of 3000 acres. More than 20,000 people are employed in the main offices and principal plant at East Pittsburgh, from where nearly 800 carloads of finished products are shipped by Westinghouse every month.

* * *

IN THE field of steel mill electrification, Westinghouse has a number of achievements to its credit, particularly in the application of large main roll drives. At the Edgar Thomson works of the Carnegie Steel Co. are two 1500-horsepower direct-current motors operating a light rail mill installed by Westinghouse in 1906 and representing the initial large motor drives used in rolling mill work. The actual application of electricity to service in the iron and steel industries, however, began somewhat earlier, since in 1882 a two-light arc dynamo was installed in the same plant of the Carnegie company and nine years later a 50-horsepower

direct-current generator and three motors were added, all of Westinghouse manufacture.

One of the outstanding features of the earlier period of mill electrification was the application of the direct-current motor to the reversing type of mill. The initial installation was made by Westinghouse on a 30-inch universal plate mill of the Illinois Steel Co. at South Chicago. About two-thirds of subsequent installations of reversing mill equipment has been furnished by Westinghouse. One of the first applications of reversing motor equipment on a blooming mill was made in 1913 when the Steel Co. of Canada closed a contract with Westinghouse for motor drive for a blooming mill, billet mill and rod mill.

* * *

IN THE early days considerable missionary work was required to enthuse steel companies regarding the advantages of electric drive; today, electrification is accepted as indispensable to mill practice and it is significant that the Pittsburgh district, the cradle of steelmaking, also has been the scene considerable of the extensive development work in production equipment.

During the last 25 years about 150 steam engines have been replaced by motors and the tendency to rehabilitate existing mills is increasing rapidly. The latest Westinghouse achievement in mill drives is the twin-motor drive to be installed on a 54-inch reversing blooming mill of the Illinois Steel Co. The motor capacity is 10,000 horsepower, 25 per cent more than yet has been applied to any single stand mill and the first blooming mill installation where twin-motor drive is used, each of the two rolls being driven by a separate reversing motor.

* * *

IN RECENT years Westinghouse has been an active proponent of the use of electric welding. As one of the leading manufacturers of electric welding apparatus the company has developed many applications for its use in its own shops. All of the recent plant and office buildings, including one 11-story laboratory, have been or are being erected by the use of welding. The 250 to 300 welders currently at work in the production of a variety of products at Westinghouse plants compare with only 25 employed five years ago.

The increased use of electric arc welding in the building up of large equipment has been reflected in a substantial increase in the company's consumption of rolled steel products. Five years ago the tonnage of plates, axles, angles, channels, beams and bars entering into the manufacture of various types of equipment was only one-fourth present consumption.

* * *

ALTHOUGH divorced from the labor troubles that a few years ago exerted such a disturbing influence on the bituminous coal industry, prosperity has been slow to return to this important activity of western Pennsylvania. Coal prices continue at the low levels prevailing throughout 1929, with profits similarly depressed.

Demand since the first of the year has reflected the restricted operations of general industry, while during the past several weeks activity showed the usual decrease that accompanies the end of the market for domestic fuel and the period prior to the commencement of shipments to Lake Erie ports for further movement to points at the head of the Great Lakes.

The reduced rate of steelmaking during the first quarter compared with that a year ago has exerted only a moderate influence on operations of independent coal operators due to the large percentage of captive fuel that is consumed by coke ovens of steel producers. Operations of the Pittsburgh Coal Co., the leading bituminous interest, have been maintained at slightly better than the 1929 rate, with 10,000 men employed at the company's 19 mines. Operations are on a five-day basis, but this condition is not general, many companies scheduling only a three-day week. The Pittsburgh company's production is around 1,000,000 tons monthly.

* * *

LABOR problems in the soft coal industry have been comparatively few in recent months. Some attempts have been made to organize the coal diggers at nonunion mines but employment conditions have not been sufficiently satisfactory to support a drive for higher wages. Loaders currently are receiving around 52 cents a ton, compared with the 77-cent rate prescribed in the Jacksonville scale established prior to the last strike when the union lost its hold in this district.

* * *

COAL operators of this district have renewed the seven-year struggle for a wider spread between their freight rates and those of southern competitors to Lake Erie through the filing of a petition that seeks an increase over the current 35-cent differential. No relief is in prospect for this year. At present the rate on coal from Pittsburgh is $1.46 a ton, against $1.81 for the several hundred additional miles from southern West Virginia, Virginia and Kentucky. In some of the latter routes the distance to Lake Erie is nearly three times as far as from Pittsburgh.

This low differential partly has been responsible for the wresting by southern operators of considerable of this valuable market from their northern competitors. Last year Pennsylvania shipped 7,998,000 tons of coal to the lakes, compared with 19,748,000 tons for West Virginia and 6,850,000 tons for eastern Kentucky. In 1920 combined shipments of West Virginia and eastern Kentucky were only 7,512,000 tons. Pennsylvania took first rank last year in total bituminous production, with 142,400,000 tons, however, topping the West Virginia total of 138,015,000 tons for the first time since 1927.

* * *

COAL reserves in western Pennsylvania remain large despite the extensive operations that have been carried on in this district. These reserves are placed at forty billion tons. Underlying this region are over 30 beds of coal ranging in thickness from less than 1 inch to more than 12 feet. A vein less than 18 inches in thickness is not considered as a coal resource, however, and is not included in the above figure. Of the large deposits in this district, the Pittsburgh bed has been the one most actively developed. Nearly six billion tons still are available even though about four billions have been mined.

* * *

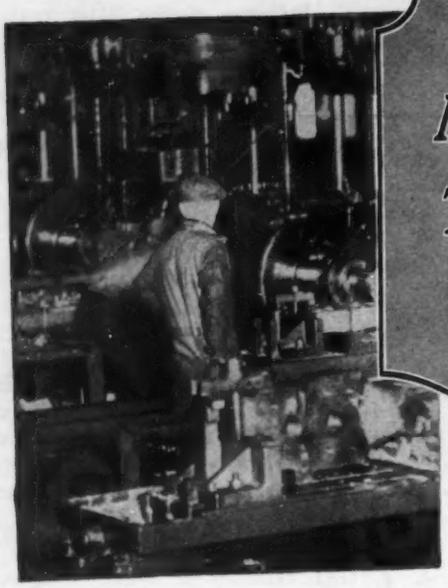
RIVER traffic in iron and steel products has picked up sharply following a slow period early in the year. Record shipments during March brought the total on the Allegheny, Monongahela and Ohio rivers in this district during the first quarter to 499,845 tons, against 470,101 tons during the 1929 period. This showing was made in the face of a decrease of about 15 per cent in steel production during the same periods and attests to the manner in which steel producers are taking advantage of water transportation facilities.

The Allegheny river has accounted for little steel tonnage in recent years but activity on this stream is expected to be increased as the result of canalization work proposed for it. Inclusion of a $3,615,000 item for this work in the current appropriation bill at Washington recently received approval by the rivers and harbors committee of the house of representatives.

* * *

DESPITE the completion of lock and dam work on the Ohio last year between Pittsburgh and the Mississippi, considerable dredging remains

(*Concluded on Page* 163)



New Machine Tools and Shop Equipment

"There is always work and tools to work withal, for those who will."
—Lowell

Obsolete Machine Tools Must Go

OBSOLESCENCE of machine tools is a factor which constantly is being pointed to as an evil of the industry. Tools 10, 20 and 30 years old still are operated by manufacturers who no doubt consider that as long as the machine can be made to turn over, no reason can be cited for scrapping it and installing a newer design. It has been shown in many cases that manufacturers do not even know how old their machines actually are but continue to operate a group of tools with the idea that they represent the best and newest in equipment, when as a matter of fact the machines may be well past a decade in age. Of course longevity in a machine ably testifies to its original worth and dependability but even in so doing, it boosts production time, lowers quality and has an injurious effect on the morale of the operator. A builder of lathes in Ohio has instituted a step which will aid in the turnover of obsolescent machines. A metal plate is attached to the machine indicating the factory serial number, manufacturer's serial number, when the machine was purchased and what the selling price was. By this means it may be determined at a glance how old the machine is and obsolescence will be apparent even to one who is not conversant with the latest improvements in design. An official of the lathe company states that the company is proud to show these plates to visitors because they indicate that the company proposes to use nothing but the latest developments in machine tool equipment. The use of plates of this type has since spread to many other plants and has been found an effective method of convincing chief executives that economical operation is being prevented by the use of obsolete equipment. Another advantage is the good effect upon operators of the machine since they are made to realize how much the company has invested in the equipment they handle and use.

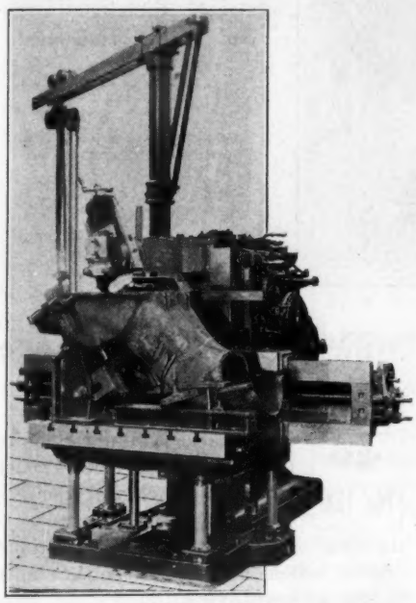
The statement was made recently by a manufacturer of machine tools that if every machine tool used in this country today had such an "age" plate attached to it, at least 50 per cent of the machines would be replaced soon, because they have been used already too long. This would certainly be a boon to the machinery market which in the present industrial depression has slipped considerably below normal.

Obsolete shop equipment cannot compete successfully with new highly productive machinery. Much discussion has been heard about the low return on original investment in industrial plants; often this can be traced directly to the use of old and inefficient equipment. It is coming to be generally recognized that a sound program of equipment replacement should be planned and followed as equipment becomes worn out and obsolete. During a temporary business depression is the ideal time for the bulk of any such program to be carried out. Prices are usually somewhat lower, deliveries better and money conditions are easier in such a slack period. Labor is more plentiful and productive demands, since they are moderate. will not interfere with alterations and modernization of equipment. This is a far-sighted policy and one which most manufacturers approach rather timidly. Yet it is a policy which will make its advantages known to a marked degree when the industry has returned to a normal level. The manufacturer who, in a period of inactivity, sees the opportunity to revamp his equipment for the next surge of production, in the end will benefit the most.

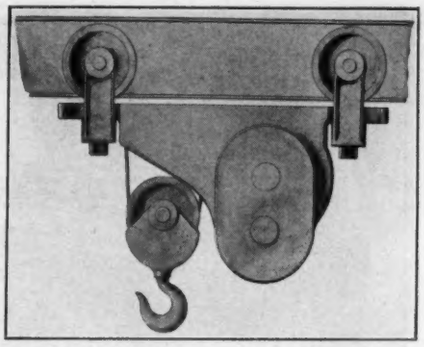
Shaper Machines Stoker Discharge Boxes

No. 122

Morton Mfg. Co., Muskegon Heights, Mich., has developed a 48-inch high-duty draw-cut shaper with special tilting attachment used in the machining of locomotive stoker discharge boxes. This machine, shown in the accompanying illustration, has 60 inches horizontal or side feed, 27 inches vertical feed, 41 inches space between the ram and lower table, and power rapid traverse, both horizontal and vertical. It has four self-adjusting screws for raising and lowering the table, assuring alignment of the work at all times. The machine is driven with a variable speed transmission having 20 or more speed changes. This machine is furnished with standard equipment and may be used on production shaping and planning when special work is not available.



No. 122—Heavy-duty draw-cut shaper has special attachment for machining locomotive stoker discharge boxes



No. 124—Small, light hoist is high-powered in relation to its weight

Standard Screw Threads Shown on New Gages

No. 123

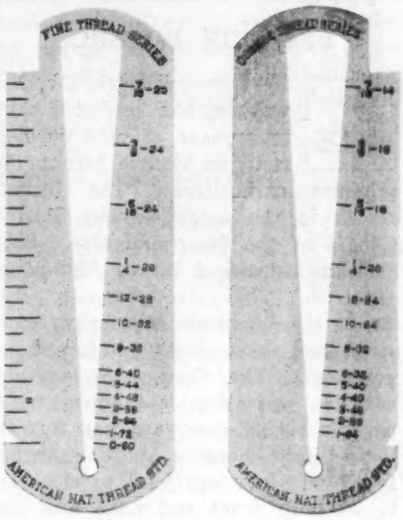
Brown & Sharpe Mfg. Co., Providence, R. I., recently has announced a handy gage for determining screw threads, according to the American national screw thread standards. One side of the gage is graduated for the fine thread series and the other side for the coarse thread series. Both sides are shown in the accompanying illustration. A 3-inch scale graduated in eights is provided on one outer edge of one side. This allows the length of screws to be determined. Slots at either end of the scale permit the heads of both round and flat-headed screws to be set against a positive stop when measured.

Bantam Hoist Provides Ample Power

No. 124

Robbins & Myers Inc., Springfield, O., has designed a new bantam hoist, said to be the smallest, lightest, and most powerful hoist with reference to size and weight yet manufactured by the company. The hoist is manufactured in styles suitable for use on alternating and direct-current circuits with either rope or push button control; the latter is a new simplified and centralized system of sturdy, reliable construction. The hoist frame is designed to permit the use of the standard I-beam trolley or any make of monorail trolley.

Among the outstanding features of



No. 123—Special gage for determining screw threads according to American national screw thread standards

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date described	Page
Trolley	Adaptable to many sizes of beams; reduces friction	Robbins & Myers Inc.	109	April 17	60
Reversing switch	Designed to control large motors; has magnetic action	General Electric Co.	110	April 17	60
Grease pump	Built to handle mill greases; operates in oil bath	Hills-McCanna Co.	111	April 17	61
Boiler plug wrenches	Alloy steel handle sets provided for convenience	Stevens Walden Inc.	112	April 17	61
Drilling machines	Action is semiautomatic; drills and reams at rapid rate	Langelier Mfg. Co.	113	April 17	61
Welding machine	Production machine places double weld on trunks	Taylor-Winfield Corp.	114	April 24	72
Control device	Photoelectric relay principle; beam of light controls action	General Electric Co.	115	April 24	72
Lubricator	Oils heavy-duty apron conveyor; solves oiling problems	Hills-McCanna Co.	116	April 24	72
Round straightener	Redesigned machine maintains constant center line	Sutton Engineering Co.	117	April 24	73
Hoist	Built for high speed operation; adaptable to many uses	Milwaukee Elec. Crane & Hoist Co.	118	April 24	73
Lathe	Accommodates material of large diameter	South Bend Lathe Works	119	April 24	73
Chucking machine	Machines automobile pistons; leaves no tool marks	Baird Machine Co.	120	April 24	74
Pressure regulator	Small size machines has many uses; used as starter	Cutler-Hammer Inc.	121	April 24	74
Shaper machine	Equipped with special adjusting screws for accurate work	Morton Mfg. Co.	122	May 1	131
Gage	Length of screws can be determined; is standard threads	Brown & Sharpe Mfg. Co.	123	May 1	131
Hoist	Uses rope or push button control; has high safety factor	Robbins & Myers Inc.	124	May 1	131
Carburizing furnace	Provides uniform case; can be used for hardening	Hevi Duty Electric Co.	125	May 1	132
Milling machine	Gives wide range of spindle speeds; is larger	Cincinnati Milling Machine Co.	126	May 1	132
Straightener	Has heat treated shafts; designed for accuracy	Sutton Engineering Co.	127	May 1	133
Separator	Designed for multiple uses; is easily moved	Beardsley & Piper Co.	128	May 1	133
Electrode	Designed for use with chrome-nickel steel	Lincoln Electric Co.	129	May 1	133
Spindle nose	Interchangeable parts built; simple in design	Monarch Machine Tool Co.	130	May 1	133
Instrument stand	Provides close micrometer work; used with microscope	Society Genevoise d'Instruments	131	May 1	134
Lathe	Motor is self contained; is of heavy construction	Reed-Prentice Corp.	132	May 1	134

the hoist, shown in the accompanying illustration, are the following: It is light in weight and small in size, resulting in low headroom; it provides speedy operation; it has 500-pound capacity; it has a simple and positive lubrication system; it is attractive in appearance, and of rugged construction; and it is built with a high safety factor in all materials used.

Research Perfects Heat Treating Furnace

No. 125

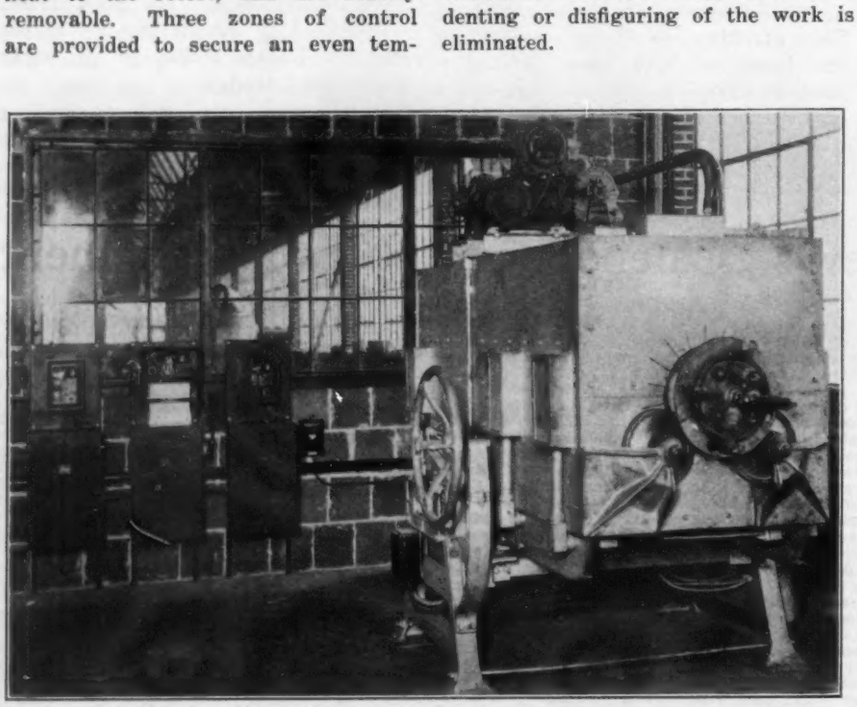
Hevi Duty Electric Co., Milwaukee, has perfected after four years of field development an electric furnace for pressure carburizing. The furnace shown in the accompanying illustration is of the 600-pound size. Sizes also are furnished up to 1200-pound capacity. They are ruggedly constructed, being made of a heavy outer steel shell substantially reinforced and insulated. The furnace is provided with an operating mechanism which permits tilting backward and forward to facilitate charging and discharging. Insulated plugs are used to close the retort both front and rear, and they are easily removable for free access for loading and unloading.

Heating Elements of Alloy Steel

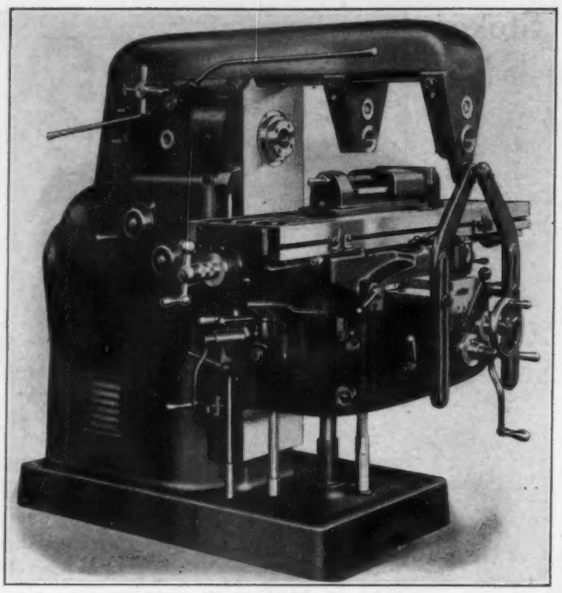
The heating elements are mounted on all four sides of the furnace chamber and are of round rod nickel-chromium type. The elements are mounted in radiant-type refractories which permit a direct reflection of heat to the retort, and are readily removable. Three zones of control are provided to secure an even temperature throughout the length of the retort.

Prepared gas under pressure is normally used, and is cracked into hydrocarbons and absorbed by the steel charge. Artificial and natural gas as well as carburizing compound are as readily used. The case is uniform on the parts treated, and with normalized carburizing steels a penetration of 1/16-inch in 5½ hours takes place at 1675 degrees Fahr. The furnace also may be used for hardening operations, and has successfully nitrided steel bars of a dimension to require a furnace chamber of extreme length with small diameter.

The rotation of the retort can be varied between such wide limits that denting or disfiguring of the work is eliminated.



No. 125—Carburizing furnace is equipped with nickel-chromium heating elements mounted in radiant-type refractories



No. 126—Milling machines are equipped with independent directional control for all movements

Millers Have Wide Range of Spindle Speeds

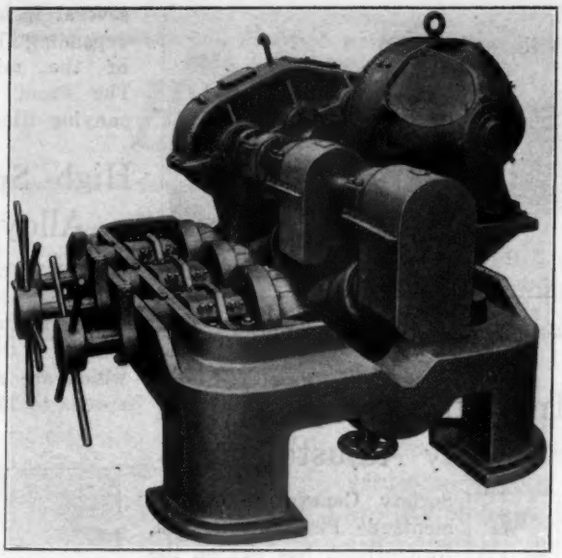
No. 126

Cincinnati Milling Machine Co., Cincinnati, has added two new machines, the No. 4 plain and universal, to its line of millers. These additions, one of which, the plain type, is shown in the accompanying illustration, have 16 spindle speeds, ranging from 14 to 450 revolutions per minute, and 16 table feeds, ranging from ¾ to 39 inches, which are changed by an automatic power shift mechanism controlled from either the front or rear.

Independent Control Provided

Independent directional control levers for cross, vertical, and longitudinal movements of the table, in or out, up or down, left or right, are provided. Each one of the movements also has power rapid traverse with the spindle stopped or running. The machines are equipped with rear hand adjusting cranks for getting accurate cross and vertical adjustments the same as are found at the front of the machine; automatic lubrication of the mechanism by a geared pump located inside the column; antifriction bearings; and a cutter coolant pump.

The rectangular overarm has been increased in size and made stronger. There are no universal joints, while the vertical drive shaft is enclosed, adding to the safety of the operator. The lead-screw construction has been improved; the elevating screw is of the single piece type, eliminating the sleeve; the thread bearing of the nut has been increased; and the general proportions of the column and knee have been increased.



No. 127—An adjustable groove roll is provided with the two way shaper to accommodate all thicknesses

Heavy-Duty Straightener Has Higher Accuracy

No. 127

Sutton Engineering Co., Pittsburgh, recently has added to its list of two-way straightening machines a heavy-duty design which consists of nine vertical rolls and seven horizontal rolls, provided to get the required accuracy of straightening demanded. The straightener, shown in the accompanying illustration, is equipped with shafts all of which are heat treated chrome-nickel steel. It is especially adapted to light structural shafts as well as flats, hexagons, squares, and other shapes. An adjustable groove roll is provided to accommodate all thicknesses of flats within the range of the machine, thus doing away with roll change. The seven horizontal roll attachment may be traversed so that all sizes of hexagons within the range of the machine may be straightened on one groove.

Portable Unit Extracts Scrap Materials

No. 128

Beardsley & Piper Co., Chicago, is announcing a new portable magnetic separator unit which provides positive separation of scrap, shot and tramp iron from sand and other materials. This unit, shown in the accompanying illustration, removes only the metal parts and does not pick up or waste any material being conveyed.

Has Many Uses

It may be placed under discharge chutes or bins at the discharge or in front of the belt or flight conveyors, or may be adapted to any machine or process where complete magnetic separation is necessary. Its flexibility makes magnetic separation applicable to every handling process where iron or steel shot or tramp iron contaminate the products being handled.

New Drive Employed

The new unit consists of a short belt running between two pulleys, the magnetic pulley being at the head or drive end. Metal parts or shot are picked up by the magnetic pulley and are carried over into a suitable discharge chute. The drive is new in application, consisting of a motor-generator set, the motor of which drives the belt through a speed reducer and chain while the generator furnishes direct current at correct voltage for the separator. This gives a unit that requires only one connection to the power supply which may be either alternating or direct current.

Alloy Electrode Gives Ductile Welds

No. 129

Lincoln Electric Co., Cleveland, has developed a new electrode to be used for welding chrome-nickel steels. Since this rod is of the same 18 per cent chromium 8 per cent nickel chemical composition as the corrosion resisting steel, dense ductile welds are said to result. This is accomplished by having the welding done in a protected atmosphere thus excluding the oxygen and eliminating oxidation of the metal weld.

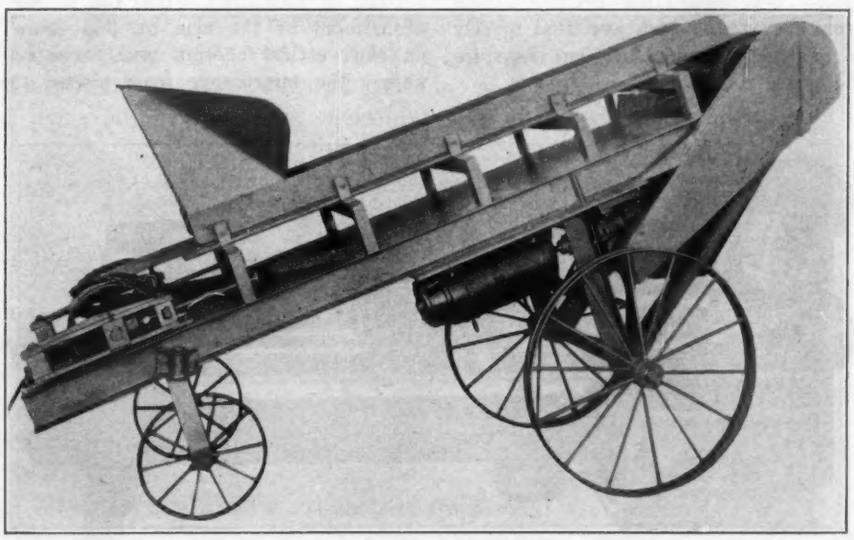
Forms Gaseous Envelope

The rod is coated with a material which in the intense heat of welding forms a gaseous envelope around the arc. It is used with reversed polarity and permits the making of a weld that is as impervious to corrosion as the metal it joins. The rod is obtainable in three sizes, ⅛, 5/32 and 3/16-inch, in the regulation 14-inch lengths, and can be used for horizontal, vertical or overhead welding.

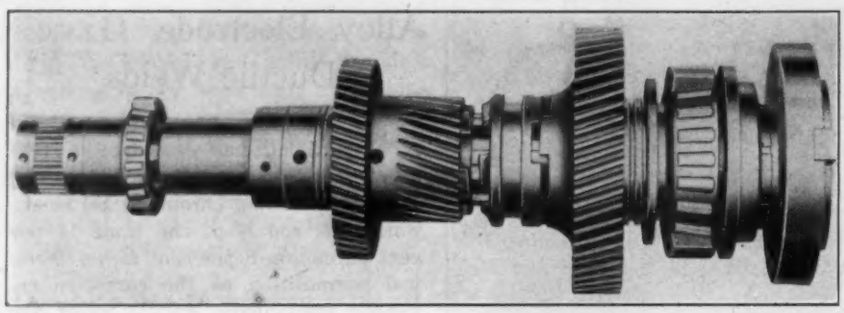
Standard Spindle Nose Increases Accuracy

No. 130

Monarch Machine Tool Co., Sidney, O., is now building lathes with a flanged spindle nose, recently considered for adoption as a standard by builders of turning machines. The new spindle, shown in the accompanying illustration, is an upset forging and the flange is forged integral with the spindle. The short tapered centralizing section and the flange, as well as the outside diameter are all



No. 128—Portable magnetic separator provides positive separation of scrap materials from sand



No 130—Flanged spindle nose is designed for interchangeability

ground, locating from the journal bearings of the spindle. The taper hole in the spindle is also ground.

Chucks, plates and fixtures which are properly machined to the working gages will fit on the spindle nose, allowing 0.004-inch draw fit against the locating flange which perfectly centralizes all chucks and fixtures. It is possible to interchange a face plate of this spindle nose, using precaution to see that there are no particles of dirt between the locating surface of the flange and the plate, and interchange the plate dozens of times having it line up each time within a limit of 0.0002-inch.

Studs Hold Plates

There are no threads in the flange on the spindle; the studs are anchored in the body of the chucks, plates and fixtures, and nuts on the back of the flange are used to hold these plates and chucks on the spindle nose making it possible to bolt work to the face plate and remove and replace it often without the work becoming off center. The chucks fit directly on the spindle nose, thereby eliminating overhang and increasing the rigidity of the mounting. There is no chance for work held in a chuck to spring using the new flanged spindle nose. The driver key eliminates driving strain from the studs which are used merely to hold chucks and plates on the spindle nose.

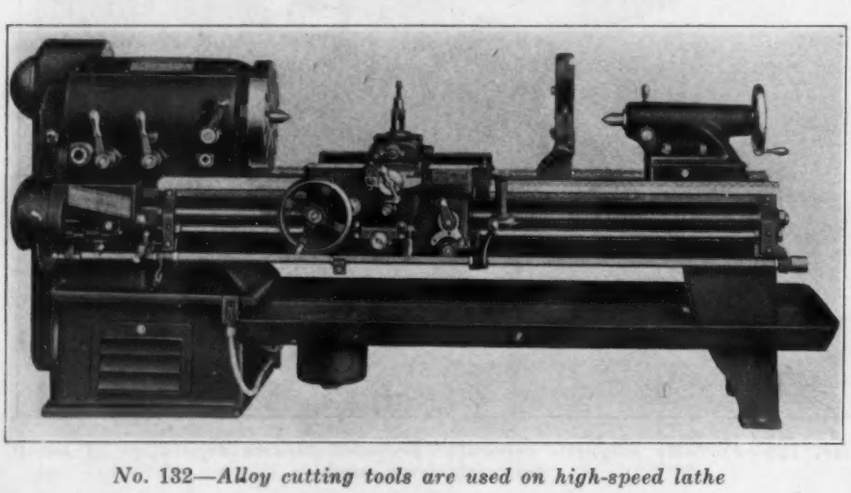
Instrument Stand Has Many Adjustments

ITB No. 131

Society Genevoise d'Instruments de Physique, Geneva, Switzerland, has put on the market in the United States though its agents, R. Y. Ferner Co., Washington, a new form of stand for the inspection of parts making use of the micro-indicator manufactured by the company. The stand is built to meet the high standards of accuracy possible with the indicator which reads to 1/10,000-inch per division and are guaranteed to 1 per cent of their range of 0.006-inch. The base and column of the stand are of heavy construction. The column is 2 inches in diameter and the total weight of the stand exclusive of the indicator and the various accessories is 48 pounds.

Microscope May Be Used

An added use of the stand may be had by the use of an adapter in the supporting arm to hold a micrometer microscope. The fine vertical adjustment of the holder will, in this case, serve for focusing the microscope on the object to be examined or measured, while the larger adjustment of the arm up and down on the vertical column will serve to adjust the microscope over pieces of several inches in thickness, the limit depending on the working distance of the microscope objective used. The stand is shown in the accompanying illustration.

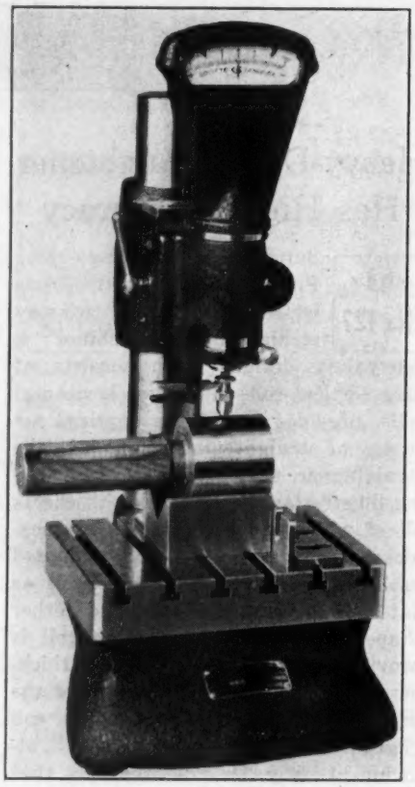


No. 132—Alloy cutting tools are used on high-speed lathe

High Speed Lathes Use Alloy Cutting Tool

ITB No. 132

Reed-Prentice Corp., Worcester, Mass., is manufacturing two new models of sliding gear head lathes which are adaptable for high spindle speeds to 1250 revolutions per minute,



No. 131—Newly perfected instrument stand for use in micrometer work

and entirely suitable for use with tungsten carbide cutting tools. Motors of 15 horsepower and 1800 revolutions per minute can be used with the lathes because of the new heavy construction.

The lathes, one of which is shown in the accompanying illustration, are equipped with self contained motor drive and oil pan, and have a quiet, rugged and powerful sliding gear transmission. The spindles are of heat treated chrome-vanadium alloy steel running in four bearings with the thrust taken on the front bearings. A twin disk clutch is mounted within the main drive pulley for start and stop of the head spindle. The clutch has only one point of adjustment, easily accessible and is operated by levers at quick change bank and apron.

Editorials

Foundrymen Set for Convention

THE week of May 12 will see members of the American Foundrymen's association gathering in convention in Cleveland for the fourth time in the organization's history of 34 years. It is fitting that Ohio's largest city should once more become host, for it is second in rank of leading foundry centers of North America. Although technical sessions and the largest exhibition of foundry equipment and supplies will hold the center of the stage, visitors can visit and inspect the most modern of the local establishments.

Competition within the castings industry has been particularly keen in the last few years and at the same time competition without the industry has made it imperative that foundry managers modernize their plants and equipment and establish a more definite castings consciousness. Among technical subjects up for discussion are cast iron metallurgy, steel founding, malleable founding, nonferrous practice, melting and coreroom practice, sand control and materials handling. In addition, the subjects of management, personnel training and foundry costs will be considered. Shop operation courses started in 1928 with cupola practice and amplified in 1929 by steel founding will be conducted this year with the inclusion of nonferrous practice.

Considerable significance is attached to the exhibition because of the restricted nature of the Chicago show last year. With ample space available, more than 225 manufacturers will present and demonstrate new and improved equipment which will further mechanize foundry operations. Foundrymen will be well repaid for attending the 1930 convention and exhibition, and attendance should be record-breaking.

Separating Trains Trebles Output

SHEET mill trains long have included stands of rolls for roughing sheet bars and finishing packs of partially-rolled sheets. Furnaces for heating the pairs and sheets originally were of the combination type. Later the trend was to build separate furnaces. Those for heating the sheets fronted on the mill standing; those for heating the sheet bars were placed in the rear of, but between, the sheet furnaces. Backtracking of the product during the rolling process prevailed, but despite this objection from 8 to 10 tons of sheets was finished per mill during a turn of eight hours.

A sheet mill recently completed in Michigan includes roughing and finishing stands, but in a somewhat different arrangement than the conventional layout. Roughing and finishing mills are coupled in separate trains. Pack furnaces are built between. Bars, brought to temperature in the pair furnaces, are passed through the roughing mills, then through pack furnaces and are hot rolled into sheets on the finishing mills. The layout affords an output of 30 or more tons per mill per turn of eight hours.

Trebled production is traceable to a separation of mill trains. This, however, could not have been accomplished had it not been for the development of the pack furnace. Not only does this unit permit continuity of processing, but provides uniform heating and a better flow of material to keep mill rolls occupied. It merits the attention of sheetmakers interested in injecting flexibility into their hot mill practice, and affords a means of bettering the welfare of the men in the mill crew.

Road Work Aiding Steel Industry

A STRONG demand for pig iron and certain forms of finished steel for equipment used in building and maintaining highways is encouraging at this time when consumption in some other lines is below normal. Road building and maintenance is now a three-billion dollar industry, meaning that much money is spent in a year's time by federal, state and local governments combined.

Authorities in this truly important industry obtain their data from the appropriations made available through these public agencies, and the fixed sums derived for the purpose in accordance with motorcar license fees and gasoline taxes. The estimate of an expenditure of approximately three billion dollars in 1930 has a practical foundation in fact.

In addition to the federal, state and rural highways there is municipal street improvement and maintenance, which the Hoover committee estimated at one billion dollars for this year.

The Hoover conferences gave impetus to the entire nation-wide road building program, and that it is well underway is evident from visual observation and orders for material.

Highways and highway bridges absorbed 364,850 tons or 1.01 per cent of the total output of finished steel in the United States in 1929; not a great amount compared with many other activities. Highway construction, however, calls for equipment, and there is a benefit in this direction for the iron and steel industry, which, while it cannot be precisely measured, is considerable.

Tool Buying Is Better Balanced

RAILROAD buying of machine tools in western markets the past few years has predominated to a lesser extent, and has been giving way to a relatively more marked activity from implement works, electrical appliance manufacturers and jobbing shops. Illustrative is the large amount of electrical appliance work that has been sublet in the Chicago district to tool and die shops, or has resulted in heavier buying of production tools, thus helping to create a broad diversification of equipment buyers. A year ago, radio manufacturers were steady purchasers of production equipment, but this demand has been declining.

The shifts in machine tool buying trends have been advantageous on the whole to a well balanced equipment market. Shop needs of western railroads still constitute an important factor, but that class of business has become less outstanding in view of the growing importance of implement and tractor builders and electrical appliance manufacturers in machine tool markets. The long range outlook from implement lines is regarded satisfactory. Many important steps in farm mechanization are being taken, and the end of expansion of tractor plants is not yet in sight.

Skyscraper Scaffold Safer than Home

ACCIDENT prevention in the building construction industry is making headway, according to representatives of the trade. Construction at one time shared with coal mining the unenviable position of having the poorest safety records of leading industries. Fatalities and serious accidents have been common in the erection of large buildings, and the fact that steelwork on two of the country's most recent skyscrapers recently was completed without the loss of life is evidence that safety work is progressing. These two buildings are the Lincoln building at New York and the Cathedral of Learning, University of Pittsburgh.

Improvement in building construction equipment in a large measure is responsible for the reduction in hazard to workmen. Use of steel equipment instead of wood for scaffolding and for material handling towers gives an additional safety factor not only through its greater strength but also because of the shorter time required for its erection.

Building construction, like coal mining, is difficult to reduce to a basis where safety is assured to the degree that has been accomplished in a number of industries. Although some progress has been made in this direction considerably more improvement is possible, and with the industry evincing interest in this movement it is not unlikely that the erecting of 10,000 tons of steel shapes without loss of life in the near future will become the rule rather than the exception it is today.

Shape Fabricators' Sky Brightens

DOWN $17,606,900 from the comparable week a year ago, construction awards in 37 states in the week of April 12-18, according to F. W. Dodge Corp., were valued at $100,146,500. The April 17 issue of IRON TRADE REVIEW reported 42,885 tons in structural lettings, against 24,020 tons the week preceding, but the issue of April 24 reported only 12,825 tons let. Total awards for the year to date, including the issue of April 24, are 530,495 tons, a decline of 175,771 tons from the 706,266-ton figure for that period in 1929.

Notwithstanding this poor comparison the fabricators' horizon is brightening. Because so much work is projected on architects' boards, or is at the bidding stage but temporarily delayed, fabricators and structural mills are optimistic concerning the spring and summer. Numbers of jobs in every market section promise to reach conclusion quickly.

Cleveland has work contemplated for bridges, hotels, department stores, etc., which require 50,000 to 75,000 tons; the Central-Lorain bridge job there alone will take 18,000 tons. Detroit has several large projects up, including a new city hall. A 7000-ton office building is being let in Milwaukee. Chicago has several sizable jobs up for bids and in New York, subways, elevated roadways, office buildings, etc., require over 75,000 tons. New York, Ohio and various other states have notable highway bridge building programs, and numerous railroads have grade eliminations planned to take large tonnages.

Prospects are good for an early narrowing of the spread between this and last year's lettings. The fact that a buyer's market prevails may encourage action on some steel work which otherwise might be deferred until fall.

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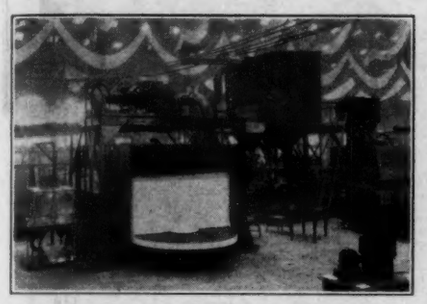

Approximately 225 Exhibitors To Display Equipment in Cleveland Foundry Show. Page 108.

Industry Clings to High Wage Policy

A SURVEY of industrial employment and wage conditions, as presented on pages 161-3 of this issue, is interesting, revealing as it does the fact there is no widespread disposition to reduce wage rates, though plant operations and employment are considerably below the average of 1929. American industry is definitely committed to a high wage policy, and difficulties which in former years would have been promptly met with a cut in wages do not now impress employers as sufficient reason for such action. In fact, the tendency is just the reverse and where employers meet to discuss their problems the disposition is to urge one another to hold fast to rates, while making whatever other adjustments may be necessary to provide employment for as many workers as possible. Underlying this is the conviction that a cut in wage rates would be detrimental in the long run, rather than an advantage.

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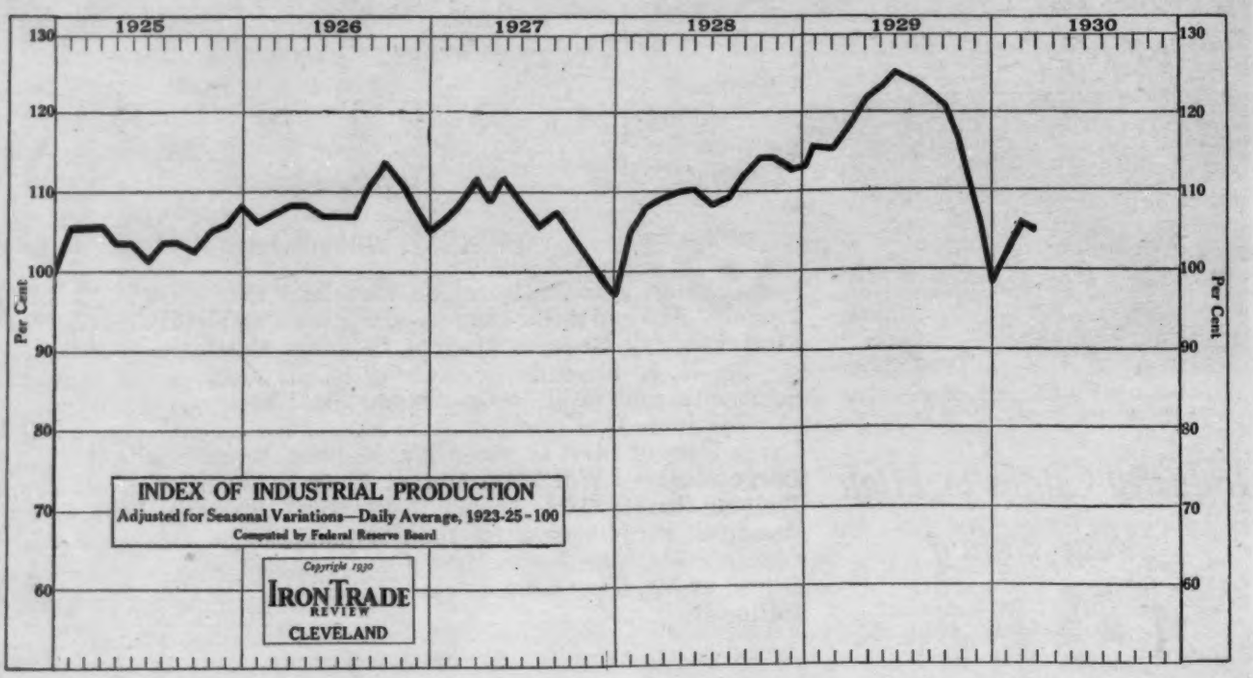
The Business Trend



Industrial Production Index Declines

ADDITIONAL evidence of a relapse in the rate of business recovery continues to come to light despite other evidences of irregular gains. One of the most important measures of industrial activity is the federal reserve board's index of production. This index, based on averages from 1923 to 1925, inclusive, dropped to 105 for March compared with 107 for February and 118 for March, 1929.

INDUSTRIAL production, reaching its low point in December after six months of steady decline, increased about 4 per cent in January and 3.9 per cent in February, raising high hopes of a fairly prompt trade revival. March records now reveal a decline in output of nearly 1.9 per cent with the month's index more than 11 per cent lower than a year ago and 18 per cent below the peak for last June.

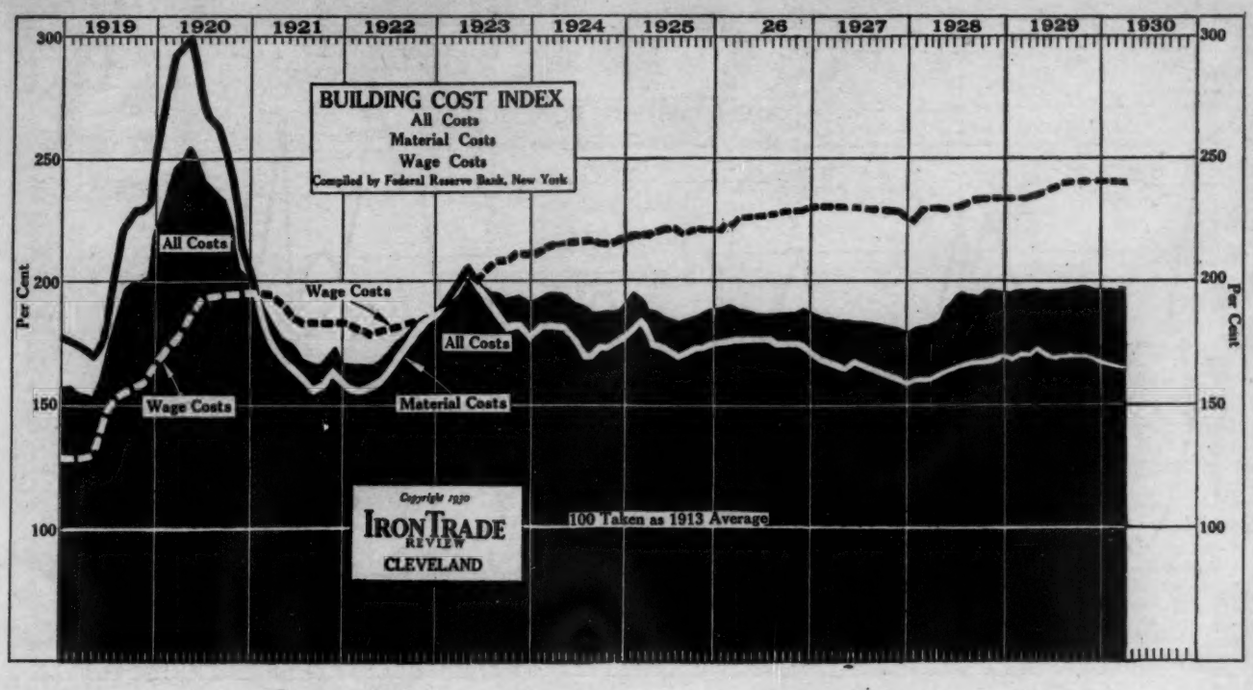
ACCOMPANYING the record of curtailed production are other evidences that business recovery is slow and laborious. Commodity prices continue to recede, employment shows little improvement, retail trade is on a reduced scale and car loadings are failing to register more than nominal seasonal weekly increases.

DESPITE numerous unfavorable statistics, which chiefly represent what has gone before, some measure of recovery is constantly taking place. Steelmaking operations are near their peak for the year to date, automotive manufacturing schedules are being further expanded, many seasonal activities are getting under way and adjustments in industry are constructing a foundation for future prosperity.

DECLINES in independent iron and steel company earnings during the first quarter of 1930 of 25 to 50 per cent compared with those for the corresponding period of 1929 testify to the severity of the industrial depression through which the country has been passing. It is significant, however, that of a dozen or more companies thus far reporting, only one has shown a deficit for the first quarter. All others have shown a profit—some a very satisfactory profit.

CREDIT conditions continue favorable. The stock market is hesitating after a surprisingly long and steady upturn. Speculative money may yet be diverted to industry in larger volume. Although the summer is ahead, the autumn months still are full of promise.

The Business Trend

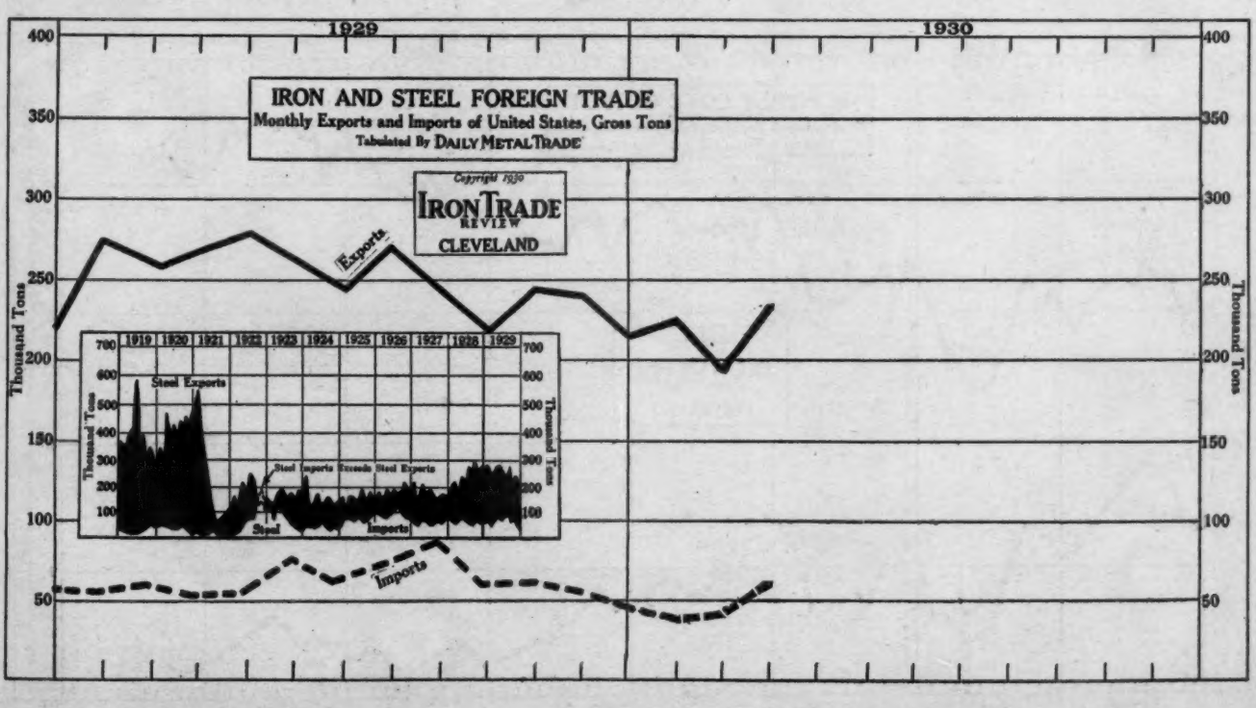


Building Costs

BUILDING costs have not come down materially from the 1929 peak, according to the index of the Federal Reserve Bank of New York. The bank's March index of all costs now stands at 195, down 1 point from the level of the four preceding months. This decline was due to a drop of 1 point in the index for materials, which now is 164 against 169 last April. The wage index continues unchanged at 424, the peak for all time. Total building costs have dropped only 1½ per cent in six months, the index shows.

Steel Foreign Trade

EXPORTS of iron and steel products rose during March to 238,333 gross tons, an increase of 40,907 tons, or 20.7 per cent, compared with February shipments, the department of commerce reports. This is the largest export tonnage for any month since last November. Imports increased 12,253 tons, or 28.3 per cent, to 55,604 tons, and were the largest since October. A large part of the gain in exports came from increased shipments of iron and steel scrap. Gains were made in two-thirds of the items.



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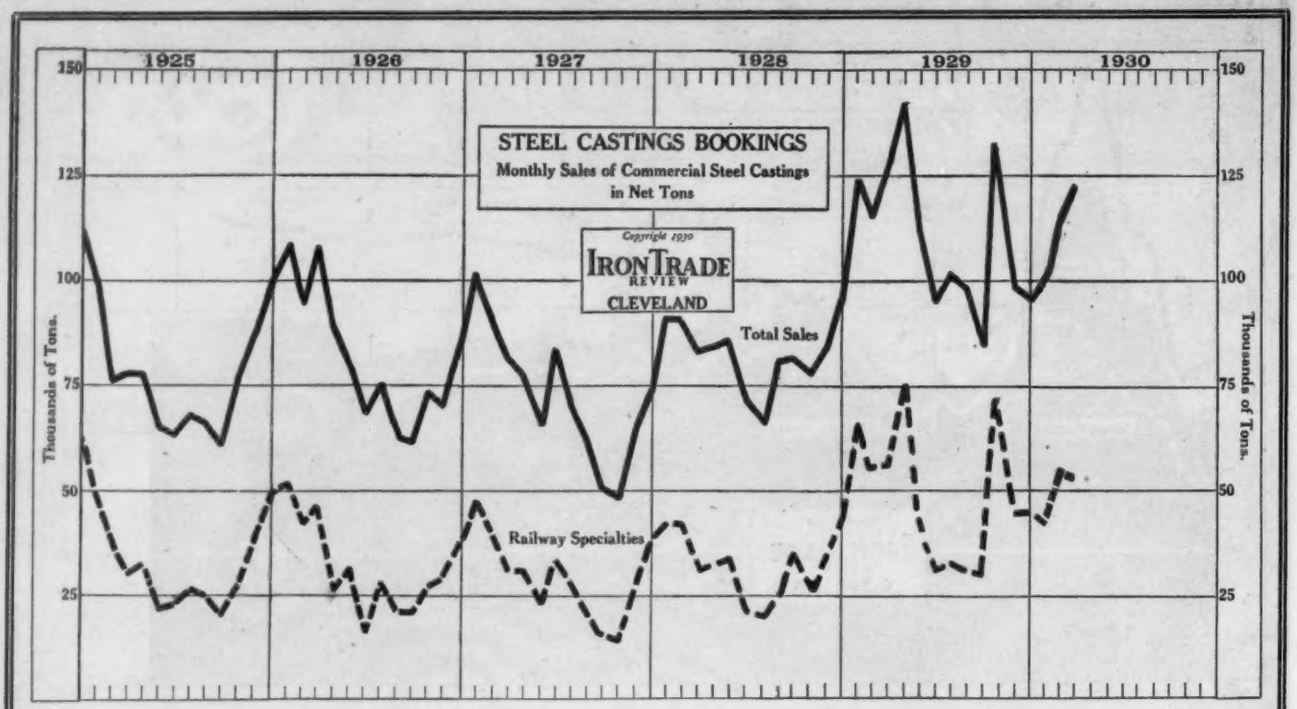
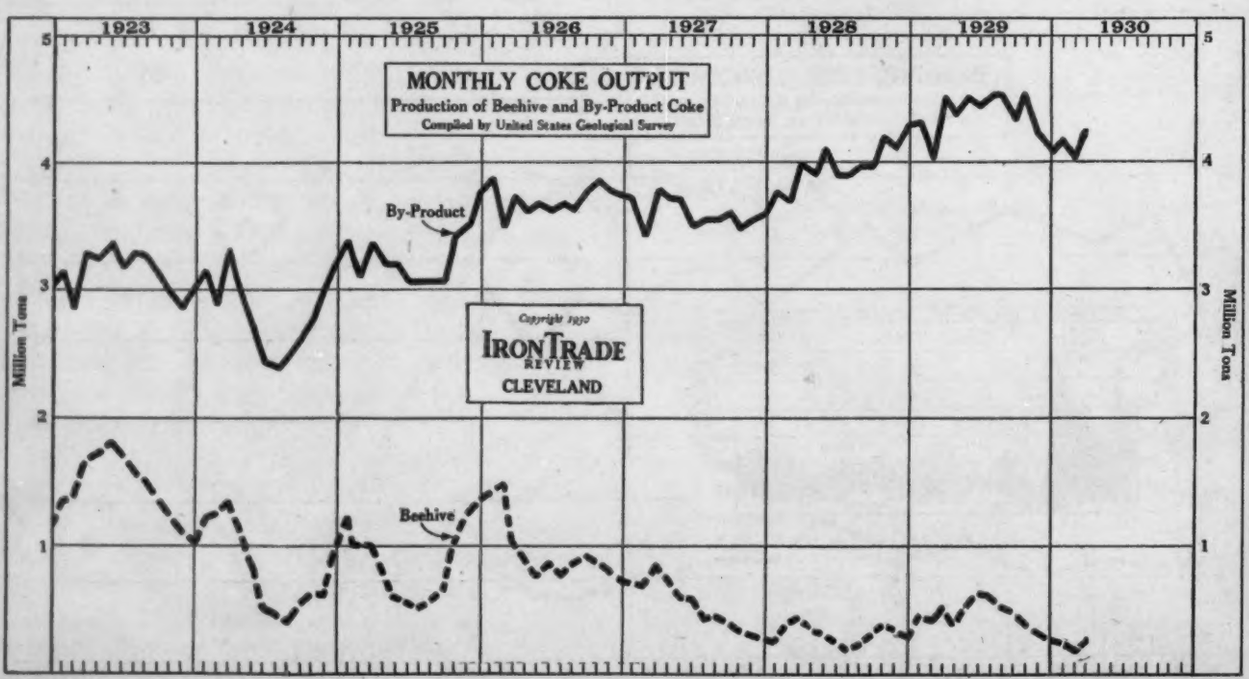


Steel Castings

ORDERS for commercial steel castings during March totaled 122,844 tons, or 85 per cent of the capacity of producers reporting to the department of commerce. This compares with 114,727 tons, or 80 per cent in February and with 130,836 tons, or 90 per cent, in March, 1929. Specifications from railroads in March were slightly less at 54,058 tons, or 81 per cent of capacity, compared with 55,310 tons, or 82 per cent in February and 60,743 tons, or 90 per cent, for March one year ago.

Coke Production

AVERAGE daily production of coke declined during March but the 31-day month brought the total up to 4,684,396 tons, 399,179 tons more than for February, according to the United States bureau of mines. By-product output was 4,399,696 tons against 4,004,217 tons for February and 4,613,075 tons for March, 1929. Beehive ovens turned out 290,700 tons against 281,000 tons in February and 533,500 tons one year ago. The daily rate of beehive production has been steadily downward since last June.



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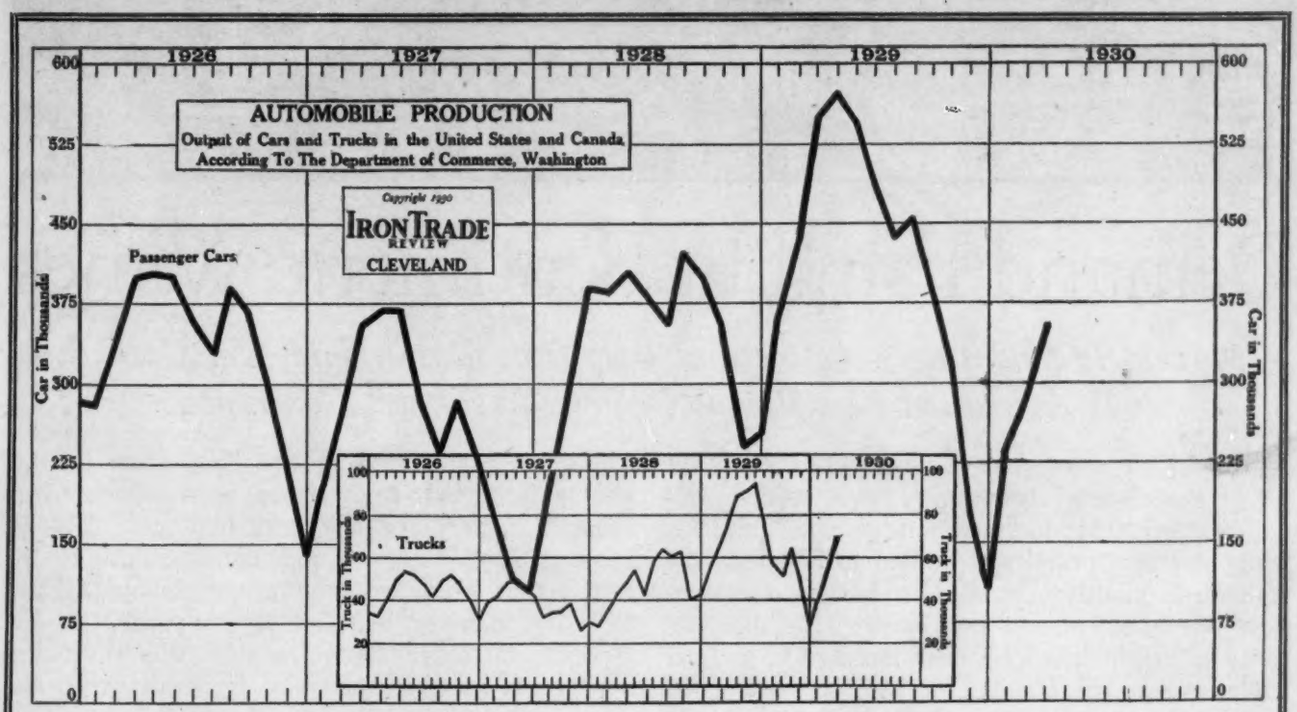
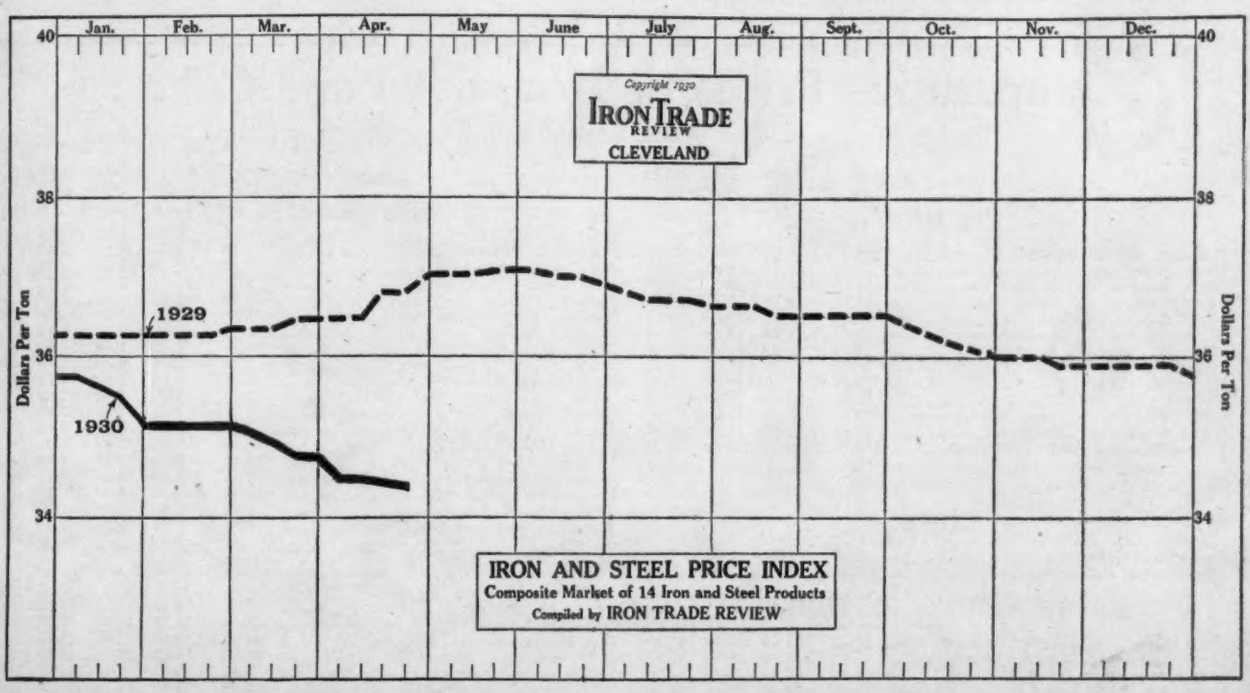


Automobile Production

AUTOMOBILE production is steadily expanding although on a plane considerably below that of one year ago. Passenger car output of plants in the United States and Canada in March was 354,343 units compared with 289,854 in February and 548,256 for March, 1929. March production of trucks totaled 67,756 units against 49,712 units for February and 77,820 for March, 1929. Total production of all vehicles increased 24 per cent in March but remained 31 per cent below the total for March, 1929.

Steel Price Index

PRICE weakness in iron and steel products, as measured by IRON TRADE REVIEW'S weekly index, has continued for two consecutive months—March and April. Quotations showed indications of becoming stabilized during February but with this exception the trend of prices has been downward through a period of about 11 months. At $34.28, IRON TRADE REVIEW'S current composite price of 14 important iron and steel products now is the lowest in seven years. A 12-cent drop was registered this week.



Demand Fair, but Sentiment Wanes

Market Is Moderately Active and Operating Rates Hold, Yet Outlook Is Appraised Less Brightly—Price Weakness Continues

MARKET developments in finished steel are moderately encouraging this week. Improvement in the automotive industry, while slow and practically limited to low-price car makers, is manifest in slightly heavier specifications for strip, sheets and bars. Line pipe activity is heightened by a mild increase in general business and the booking of 150,000 to 200,000 tons of seamless by the National Tube Co. for the Missouri-Kansas Pipe Line Co.

Car, Ship, Building Needs Are Heavy

Formal inquiry by the Illinois Central railroad for 2200 cars, requiring about 25,000 tons of heavy steel, coincides with the best equipment order week in a month, bookings including 450 ore cars and gondolas, 800 underframes, 66 miscellaneous cars and 13 locomotives. Pending ship work in the East entails 75,000 tons of plates and shapes. A spurt in structural awards, including 11,500 tons for New York subways, more than triples last week's lettings.

Nevertheless, there is an undercurrent of opinion, more pronounced in the East than in the Middle West, that the iron and steel industry has spent its effort for the first half year and is heading into a mediocre midsummer situation. It is felt that whatever gains are made by the automotive industry will fail to neutralize the defections in other lines, notably the railroads. Sentiment, irregular all year, is unmistakably in a trough this week.

Steelmaking operations, which usually at this season are at the year's peak, are generally unchanged. For the third consecutive week Steel corporation subsidiaries are at 80 per cent. Independent producers average 72 to 74 per cent, also unchanged. Pittsburgh mill operations appear somewhat stronger at 75 per cent, with other districts unchanged at 95 per cent for Chicago and Birmingham, 85 for Cleveland and 70 for Youngstown and Buffalo.

Union Wages Follow Prices Downward

Price weakness, as disclosed by the ninth consecutive decline in the IRON TRADE REVIEW com-

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

PIG IRON

	Apr. 30, 1930	March 1930	Jan. 1930	April 1929
Bessemer, del. Pittsburgh	$20.76	20.76	20.76	20.26
Basic, valley	18.50	18.50	18.50	18.00
Basic, eastern, del. eastern Pa.	18.76	18.80	19.20	20.25
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.76	19.86
No. 2 foundry, Chicago	19.00	19.50	20.00	20.00
*Southern No. 2, Birmingham	14.00	14.50	14.70	15.50
**No. 2X, Virginia Furnace	18.25	18.25	18.25	20.75
**No. 2X, Eastern del. Philadelphia	20.76	20.76	21.56	22.26
Malleable, valley	19.00	19.00	19.00	18.50
Malleable, Chicago	19.00	19.50	20.00	20.00
Lake Superior, charcoal, del. Chicago	27.04	25.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.13	19.36
Ferromanganese, del. Pittsburgh	103.79	103.79	104.79	109.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $13 to $14, Birmingham. **2.25 to 2.75 silicon.

COKE

Connellsville furnace, ovens	2.60	2.60	2.55	2.75
Connellsville foundry, ovens	3.50	3.50	3.50	3.75

SEMIFINISHED MATERIAL

Sheet bars, open-hearth, Youngstown	33.00	33.00	33.80	35.00
Sheet bars, open-hearth, Pittsburgh	33.00	33.00	33.80	35.25
Billets, open-hearth, Pittsburgh	33.00	33.00	33.80	34.50
Wire rods, Pittsburgh	38.00	38.00	40.00	42.00

FINISHED MATERIAL

	Apr. 30, 1930	March 1930	Jan. 1930	April 1929
Steel bars, Pittsburgh	1.80	1.85	1.90	1.95
Steel bars, Chicago	1.90	1.90	2.00	2.05
Steel bars, Philadelphia	2.12	2.12	2.17	2.27
Iron bars, Chicago	1.90	1.95	2.00	2.05
Shapes, Pittsburgh	1.80	1.80	1.90	1.95
Shapes, Philadelphia	1.81	1.81	1.91	2.06
Shapes, Chicago	1.90	1.90	2.00	2.05
Tank plates, Pittsburgh	1.80	1.85	1.90	1.95
Tank plates, Philadelphia	1.95	2.00	2.05	2.15
Tank plates, Chicago	1.90	1.90	2.00	2.05
*Sheets, blue anl., No. 13, Pittsburgh	2.15	2.25	2.30	2.15
Sheets, black, No. 24, Pittsburgh	2.60	2.65	2.70	2.90
Sheets, gal., No. 24, Pittsburgh	3.30	3.30	3.35	3.65
Sheets, black, No. 24, Chicago	2.80	2.80	2.90	3.10
*Sheets, blue anl., No. 13, Chicago	2.40	2.50	2.50	2.35
Sheets, galvanized, No. 24, Chicago	3.45	3.45	3.55	3.85
Plain wire, Pittsburgh	2.40	2.40	2.40	2.50
Wire nails, Pittsburgh	2.20	2.30	2.35	2.65
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.35

*Comparison for April, 1929, is with old blue annealed base, No. 10.

SCRAP

Heavy melting steel, Pittsburgh	15.75	16.60	16.55	18.60
Heavy melting steel, eastern Pa.	13.50	14.95	14.50	17.00
Heavy melting steel, Chicago	13.00	13.20	12.65	15.96
No. 1 wrought, eastern Pa.	15.25	15.25	15.25	16.25
No. 1 wrought, Chicago	12.75	13.50	13.40	16.65
Rails for rolling, Chicago	15.00	15.00	14.65	17.50

Current Prices for Rolled Steel Products

STEEL PLATES

Pittsburgh, base	1.75c to 1.80c
Philadelphia, del.	1.95c to 2.00c
New York, del.	2.02½c to 2.07½c
Boston, del.	2.16½c to 2.26½c
Chicago, base	1.90c to 2.00c
Cleveland, delivered	1.99c
Lackawanna, N. Y., base	1.90c
Birmingham, base	1.95c to 2.00c
Coatesville, Pa., base	1.85c to 1.90c
Pacific Coast, c.i.f.	2.20c
St. Louis, del.	2.12c
Detroit, del.	2.04c to 2.09c

STRUCTURAL SHAPES

Pittsburgh, base	1.75c to 1.80c
Philadelphia, del.	1.81c to 1.91c
New York, del.	1.89½c to 2.00c
Boston, del.	2.16½c to 2.26½c
Chicago, base	1.90c to 2.00c
Cleveland, delivered	1.94c to 1.99c
Lackawanna, N. Y.	1.90c
Birmingham, base	1.95c to 2.00c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.04c to 2.09c

BARS

SOFT STEEL

Pittsburgh, base	1.80c
Chicago, base	1.90c to 2.00c
Birmingham, base	1.95c
Lackawanna, N. Y., base	1.90c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.80c
Cleveland, del., outside mills	1.82½c
Philadelphia, del.	2.12c to 2.17c
New York, delivered	2.14c to 2.19c
Boston, delivered	2.16½c to 2.26½c
Detroit, del.	2.035c
Pittsburgh, cold finishing	1.90c to 1.95c
Pittsburgh, forging quality	2.05c

RAIL STEEL

Chicago Heights	1.80c to 1.85c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	1.90c
New York, delivered	2.07c
Philadelphia, delivered	2.07c to 2.12c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet cut lengths	2.10c
Stock lengths from mill	1.85c
Chicago, billet, 30 tons and over	2.00c
Under 30 tons	2.40c
Chicago, rail steel	1.70c to 1.75c
Road and bridge work	1.80c
Philadelphia, cut lengths	2.32c to 2.42c

CORROSION, HEAT RESISTANT ALLOYS

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets....35.00c; plates....31.00c; bars....28.00c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	22c	23.5c	26c	31c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.55c to 2.65c
Detroit, delivered	2.84c
Philadelphia, delivered	2.92c to 2.97c
Gary, Indiana Harbor	2.75c
Chicago, delivered	2.80c
Birmingham, base	2.80c
St. Louis, del.	2.97c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.80c to 2.90c
Gary, base	2.95c to 3.05c

GALVANIZED NO. 24

Pittsburgh, base	3.25c to 3.30c
Philadelphia, delivered	3.57c to 3.62c
Gary, Indiana Harbor	3.40c
Chicago, delivered	3.45c
Birmingham, base	3.45c to 3.55c
St. Louis, del.	3.62c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base*	2.05c to 2.25c
Chicago, district mills	2.35c
Chicago, delivered	2.40c
St. Louis, delivered	2.57c
Philadelphia, delivered	2.47c to 2.57c
Birmingham	2.40c

*Minimum price is on continuous mill product.

BLUE ANNEALED PLATES, NO. 9-10

Pittsburgh, base*	1.90c to 2.10c
Chicago district mills	2.20c
Chicago, delivered	2.25c
Philadelphia, delivered	2.32c to 2.42c
St. Louis, delivered	2.42c
Birmingham	2.25c

*Minimum price is on continuous mill product.

AUTOMOBILE NO. 20

Pittsburgh, base	3.80c
Detroit, delivered	4.09c

FURNITURE NO. 24

Pittsburgh	3.80c to 3.90c

(Turn to the following page)

posite to the lowest point since early April, 1922, was accentuated this week by further concessions in sheets and a reduction of 50 cents a ton in pig iron at Chicago, to $19, furnace. Iron and steel scrap prices in most districts have given further ground, and in many finished steel lines there is listlessness and a marked lack of support.

Those wage levels dependent on open-market prices are now feeling the effects of this deterioration in the market. Wages in unionized sheet mills for May and June will be reduced 4½ per cent, the first cut since 1927 and the lowest rates paid since 1922. Bar iron mill puddlers were cut 25 cents a ton for March and April, and now another 25 cents is taken off the May-June rate.

Pig Iron Buying Is Declining

Pig iron buying, which early in April was for immediate needs only but good in volume, has flattened out, and the April lead over March shipments is less than anticipated. However, no stocks have accumulated either at furnaces or foundries. Another stack at Buffalo has been blown out. Southern prices are easier. Territory competitive to Chicago likely will experience an adjustment to the second 50-cent reduction there since March 1. Activity in beehive coke is light but prices are unchanged. Chicago plate mills still look to early placement of the Texas-Chicago gas line, which will require nearer 300,000 tons than 200,000 tons if a contemplated heavier section is specified. Chicago district car builders are booked to July 15, indicating heavy plate specifications through this quarter. Bar specifications at Chicago require 7-day operations in some mills. In the Mahoning valley, hot strip mills have spurted in the past week. Pittsburgh finished steel producers generally report slightly better bookings.

Shapes 200,000 Tons Behind 1929

Structural steel awards this week totaling 41,060 tons, far outstripped the 12,825 tons of last week but fell short of the 71,432 tons bought in the corresponding week of 1929. For the year to date 571,555 tons has been placed, against 777,698 tons a year ago.

March exports of iron and steel products, at 238,338 gross tons, brought first quarter shipments to 660,849 tons, compared with 804,932 tons a year ago. March imports were 55,604 tons, like exports a gain over February, and made the first quarter total 141,269 tons, gainst 165,686 tons in the first quarter of 1929.

As consumers of Lake Superior iron ore indicate their requirements more definitely, some producers are forecasting a 55,000,000-ton year, compared with 66,000,000 tons last season. The first cargoes are down from the head of the lakes.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (April 30, 1930)	$34.28
Last week (April 23, 1930)	34.40
One month ago (March, 1930)	34.95
Three months ago (January, 1930)	35.56
One year ago (April, 1929)	36.81
Ten years ago (April, 1920)	67.49
Fifteen years ago (April, 1915)	22.66

A reduction in pig iron at Chicago and in blue annealed sheets lowered the IRON TRADE REVIEW composite 12 cents, to $34.28. The average for April was $34.44, compared with $34.95 for March and $36.81 last April.

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted on Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	1.80c to 1.90c
Delivered, Detroit	2.09c
Hot strip 6 1/4 to 24-in., Pitts.	1.70c to 1.80c
Delivered Detroit	1.99c
Hot strip, bands 6 in. and under, Chicago	1.90c to 2.00c
Do. 6 1/4 to 24	1.80c to 1.90c
Cooperage stocks, Pittsburgh	2.00c to 2.10c
Do. Chicago	2.10c to 2.20c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 tons and over)	2.55c to 2.60c
Delivered, Detroit	2.78½c
Worcester, Mass. (3 tons and over)	2.80c to 2.90c

ALLOY STEEL

Hot Rolled—F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differentials	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 125-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanad'm	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds, squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same prices per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Bars, drawn or rolled, Pitts., Chi., Buffalo, and Cleve. c.l.	2.10c
Do, delivered, Detroit	2.23½c
Shafting (turned, polished) Pittsburgh, Buffalo	2.10c
Shafting (turned, ground) mill 2.45c to 2.90c (Depending on size, 1 3/16 to 7-inch)	

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland base

(Per 100 pound keg)

(To Merchant Trade)

Standard wire nails	$2.20 to 2.30
Cement coated nails	2.20 to 2.30
Galvanized nails	4.20 to 4.30

(Per pound)

Polished staples	2.65c to 2.75c
Galvanized staples	2.90c to 3.00c
Barbed wire, galvanized	2.85c to 2.95c
Annealed fence wire	2.35c to 2.45c
Galvanized wire	2.80c to 2.90c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Bright plain wire, 6 to 9 gage	2.40c
Spring wire	3.40c
Wire, delivered Detroit	2.535c
Nails, delivered Detroit	$2.435

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland base on products made there; Duluth $2 higher; Fairfield, Ala., $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, c.l., f.o.b. mills	2.55c
Cut nails, l.c.l., f.o.b. mills	2.65c
Sheet piling, base, Pittsburgh	2.10c to 2.20c

Chain proof BB and BBB, Pitts.

3/16-in. to ½-in.	33 1/3 and 5 off
9/16-in. to 1½-in.	33 1/3 off

CAST IRON WATER PIPE

Class B Pipe—Per Net Ton

Six-inch and over, Birming'm.	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	38.50 to 40.50
Four-inch, New York	41.50 to 42.50
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE; TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, primes, No. 24	3.95c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, l.c.l, Chicago dist.	$6.80 to 6.90 off
Wrought, c.l., Chicago	$7.00 to 7.10 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$25.00 to 29.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, mills	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, mills	$41.50

BOLTS AND NUTS

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lists, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.	
Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

NUTS

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	85-10 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts.-Cleve.	3.10c
Structural, c.l., Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED STEEL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	32.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30
Chicago	35.00
Forging, Chicago	40.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$33.00
Youngstown	33.00
Cleveland	33.00
Chicago	35.00

SLABS

Pitts., Young.	$33.00
Cleveland	33.00

WIRE RODS

Pittsburgh, Cleveland	$38.00
Chicago	39.00

SKELP

All grades, Pittsburgh	1.80c to 1.85c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63% (contract)	10.00
Copper-free low phos. 58-65%	nominal

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55%, iron, 6-10% manganese	11.00 to 11.50
North African low phosphorus	11.50 to 12.00
Swedish basic, 65%	9.50 to 10.50
Swedish low phosphorus	11.50 to 12.00
Spanish and North African basic, 50 to 60%	10.00 to 11.00
Newfoundland foundry, 55%	9.00
Tungsten, spot and future, short ton unit, duty paid	14.00
Chrome ore, 48%, net ton c.i.f.	$22.50

MANGANESE ORE

Prices, not including duty, are cents per unit; cargo lots.

Caucasian (52-55 per cent)	30 cents
Indian (48-50 per cent)	30 cents
Brazilian (46-48 per cent)	28 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east, tide., gross ton	$19.50 to 20.50

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00
Ohio	43.00
Illinois	43.00
Kentucky	43.00
Missouri	43.00
Maryland	43.00
Georgia and Alabama	40.00 to 47.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	$40.00
Domes., Chewelah, Wash., base	22.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	$45.00

Pig Iron

Prices Again Reduced 50 cents at Chicago—Southern Iron Also Easier—Market Quieter—Another Buffalo District Stack Blown Out

THE market for pig iron is quieter, and the chief development is another reduction of 50 cents a ton by furnaces in the Chicago district, following a similar revision March 1. Further readjustment is likely to be made in adjoining market territories as occurred when prices at Chicago previously were marked down. In fact, an easier price tendency has been noted in competitive territory for several weeks, and the Chicago furnaces now are getting "in line." Sales generally are smaller than in recent weeks, the market lacking the snap which promised so much at the beginning of the quarter. Shipments in April were slightly heavier than in March. Considerable iron still is being shipped on first quarter contracts. Another stack in the Buffalo district is blown out.

PITTSBURGH, April 29.—The volume of new pig iron business is little changed from the relatively slow rate of the past two months, although foundry iron is moving in slightly heavier tonnage to some small melters. April shipments show a slight gain over those of March but incoming tonnage is little if any ahead of March. New buying is restricted to small individual orders for early shipment and the aggregate is insufficient to increase production. Inquiries are small. Prices are unchanged at $18.50, base, valley, for foundry and basic, and $19 for bessemer and malleable.

Boston, April 29.—The pig iron market is quieter, only 1500 tons having been booked in this district in the past week. Mystic Iron Works took 500 tons of this total. Fewer inquiries are noted. Buffalo iron generally is quoted $16.50, base, furnace, but it is reported No. 2X iron also can be bought for this price.

New York, April 29.—Pig iron sales for the past week again totaled around 8000 tons, comprised mainly of small lots. Pending inquiry is the lightest in several weeks, approximately 2000 tons. Buffalo iron is unchanged at $16 to $16.50, base, but southern iron is $18 to $18.50, New York docks, compared with $18.50 a week ago.

Philadelphia, April 29.—Sales of pig iron are comprised of small and moderate size lots for early shipment and the total is comparatively light. Several sales were made here in the past week by southern furnaces, mainly at $13, base, Birmingham, for the standard foundry grade.

Buffalo, April 29.—Bethlehem Steel Co. banked a furnace at Lackawanna yesterday, reducing to ten the number of active stacks in this district. It is understood the large output of a new furnace recently blown in at Lackawanna is responsible. Sales and inquiries are small. Some iron is being shipped by barge canal and additional tonnage may be moved by the Great Lakes. Prices are steady.

Cleveland, April 29.—April did not develop the expected expansion in pig iron. A large merchant producer's sales were larger in March, but its shipments in April were slightly below those of March. Another merchant interest's sales and shipments each show an increase of about 10 per cent in April over March. Steelworks furnaces did a little less in the merchant market, two steelworks furnaces here having been blown out. Bookings for second quarter are considerably below normal and much iron remains to be scld. Several makers still are shipping iron on first quarter contracts. Inventories at furnaces and foundries are the smallest since Jan. 1. Sales in the past week by furnace interests in Cleveland, Detroit and Toledo aggregated 15,000 tons, as in the week preceding. In Cleveland the market is dull, and in view of the curtailed output and light demand Cleveland furnaces are not pushing sales in outside territory. Small tonnages continue to bring $19, base, furnace, for local delivery, while for outside shipment the price is nominal at $18.50, base. Other lake furnaces continue to quote $19 to 19.50, base, for shipment in northern Indiana and lower Michigan, though the lower figure is more general.

Youngstown, O., April 29.—While pig iron sales continue to be made by merchant furnaces, the volume of new business does not vary much from week to week. The larger portion of bessemer tonnage goes under contract to makers of ingot molds. Prices continue $18.50 for basic and No. 2 foundry, and $19, furnace, for bessemer and malleable.

Chicago, April 29.—Prices of pig iron have been reduced 50 cents a ton in this market, effective May 1, the new quotations being $19, base, furnace for foundry and malleable. This brings the Chicago furnace price $1 a ton lower than that a year ago, and more in line with quotations in other districts. The price was reduced 50 cents a ton on March 1. April shipments are estimated at about 12 per cent more than those of March. Several implement makers are ordering only 30 days' requirements. A southern Wisconsin implement maker is closing for about 2000 tons. Sales of 500 tons of low phosphorus iron are noted. Activity in southern iron is fair. A cargo of iron is due to arrive here by vessel May 1. Other boat iron is being sold in this district at $19, Chicago base, or less.

Cincinnati, April 29.—Total pig iron sales in this district during the past week fell short of 3000 tons, a recession of 1000 tons or more from the weekly average recently noted here. A central Ohio buyer took 500 tons of northern for second quarter delivery.

(*Concluded on Page* 159)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pitts.	19.63 to 20.13
Basic, del. eastern Pa.	18.76 to 19.25
Basic, Buff. fur. for local del.	18.00
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	19.00
Malleable, Buff. fur. for local del.	19.00
Malleable, del. eastern Pa.	20.26 to 22.40
Malleable, Granite City fur.	19.50
No. 1 foundry, Chicago furnace	19.50
No. 1X, Eastern, del. Phila.	21.26
No. 1X, Buff., fur. for local del.	20.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	19.63 to 20.13
No. 2 plain, Buff. fur. for local del.	18.50
No. 2 foundry, Chicago furnace	19.00
No. 2 fdy., Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City	20.00
No. 2 plain, del. Phila.	20.26
No. 2 plain, Virginia furnace	17.75
No. 2 plain, Buffalo, del. Boston	21.41 to 21.91
No. 2, Brooklyn, Buffalo all rail.	20.91 to 21.41
No. 2, Newark, Buffalo, all rail	19.28 to 19.78
No. 2 Ala., Bir. base, local del.	14.00
No. 2 Tenn., Bir. base, local del.	14.00
No. 2 Tenn., del. Cincinnati	16.69 to 18.19
No. 2 Alabama, del. Cincinnati	16.69 to 18.19
No. 2, Alabama, del. Cleveland	19.51 to 20.51
No. 2, Alabama, del. Chicago	18.20 to 19.01
No. 2 Alabama, del., St. Louis	18.42 to 18.92
No. 2 Ala., Phila., dock dely.	18.25 to 19.25
No. 2 Ala., Balt., dock dely.	18.00 to 19.00
No. 2 Ala., N. Y., dock dely.	18.00 to 18.50
No. 2 Ala., Boston, dock dely.	20.21
No. 2X, Brooklyn, Buffalo all rail.	21.41 to 21.91
No. 2X, Newark, Buffalo all rail	19.78 to 20.28
No. 2X, eastern, del. Phila.	20.76
No. 2X, Buffalo, fur. for loc. del.	19.00
No. 2X, Buffalo, del. Boston	21.91 to 22.41
No. 2X, Virginia furnace	18.25
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63.00c, 76.00c and $1.13 per ton.

Silvery iron, Jackson county, O., furnace in per cents: 5—$22; 6—$22 to $23; 7—$23 to $24; 8—$24 to $25; 9—$25 to $26; 10—$27 to $28; 11—$29 to $30; 12—$31 to $32; 13—$33 to $34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$22.60
No. 1 foundry, del. Montreal	24.00
No. 2 foundry, del. Toronto	22.10
No. 2 foundry, del. Montreal	23.50
Malleable, del. Toronto	22.60
Malleable, del. Montreal	24.00
Basic, del. Montreal	22.50

Coke

New Sales Limited Mainly to Small, Spot Lots—Shipments to Foundries Seasonally Slow

COKE business for the present is restricted mainly to shipments on contracts, with the movement to foundries seasonally slow. A few sales of Connellsville beehive furnace coke have been made for shipment in May, while smaller spot orders are more numerous. Standard furnace coke holds at $2.60, base, Connellsville, some fuel of lower quality being offered at $2.50.

Pittsburgh, April 29.—Shipments of beehive coke are steady, but new business continues quiet. Some tonnage is being placed for shipment during the coming month, though buying generally is limited to occasional spot orders. Prices are unchanged, with lower quality furnace coke available at $2.50, and standard grades generally held at $2.60, minimum. Foundry coke is slightly more active in premium brands, but the demand is seasonally slow. Prices are steady.

Production of coke in the Connellsville region for the week ended April 19 was 31,170 tons, compared with 33,320 tons the preceding week and 71,450 tons in the same period a year ago, according to the *Connellsville Courier*.

Boston, April 29.—Demand for domestic coke is brisk, but foundries and other consumers are ordering on a hand-to-mouth basis. Prices are unchanged.

New York, April 29.—Beehive furnace coke is holding at $2.50 to $2.75, Connellsville, for standard grades, although some distress lots are offered at concessions. Beehive foundry coke is $3.50 to $3.75, Connellsville, and $4.85, Latrobe, Pa. By-product foundry coke is holding at $9.40, Newark; $11, New England; and $9, Philadelphia.

Cincinnati, April 29.—Demand for by-product foundry coke this month will show no improvement over March. Prices are unchanged.

Birmingham, Ala., April 29.—Shipments of by-product foundry coke are active, and the outlook is for continuation of activity at least on the present basis for three to six months. Production is steady and prices are unchanged.

St. Louis, April 29.—Melters in the West and Southwest have placed substantial orders for by-product coke and the movement continues in fair volume. Prices are steady.

Coke Prices

Prices Per Net Ton

Beehive Ovens	
Connellsville furnace	$2.60
Connellsville foundry	3.50 to 4.85
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit ovens	8.50
Philadelphia, del.	9.00

Ferroalloys

Demand for Spiegeleisen and Ferromanganese More Active

New York, April 29.—A pickup is reported in spot orders and contract specifications for spiegeleisen. Prices are unchanged at $34, furnace, on carload lots, domestic material, 19 to 21 per cent. Ferromanganese also is slightly more active with prices unchanged at $99, duty paid, tidewater, to users of carloads to 500 ton annually, with differentials on larger quantities.

Tungsten is weak and prices are nominal. Small lots are offered at $14, a short ton unit and less, but large lots are said not to be available. Practically no business is being done.

Pittsburgh, April 29.—Ferroalloy shipments show a slight gain for the past several days although the improvement over March is small. The movement of ferromanganese continues closely adjusted to the rate of operations in the iron and steel industry. Spot buying in spiegeleisen is dull. Ferrotungsten continues quiet and easy, with prices generally $1.35 to $1.40. Business in this product, however, is not sufficiently heavy to provide a thorough test. Prices of other ferroalloys are unchanged, with demand steady.

Chicago, April 29.—A cargo of English low phosphorus iron and a cargo of English spiegeleisen have been ordered for direct shipment here, it is reported. Shipments of ferroalloys are holding up.

Cuts Equipment Prices

General Electric Co., Schenectady, N. Y., has announced a price reduction to be effective immediately of from 3 to 5 per cent covering various standard lines of electric apparatus. These reductions were made as a reflection of the recent recession in the price of copper.

Farm implements manufactured in the United States in 1929 had a value of $650,000,000.

Bolts, Nuts, Rivets

Gain Over March Shown in New Buying—Specifications Are Steady

NUT AND BOLT PRICES, PAGE 144

Pittsburgh, April 29.—Business in bolts, nuts and rivets continues to show a moderate gain over March. Specifications from large structural shops are well maintained, although smaller interests are slightly less active. Demand from railroads is slower. Operations hold at about 65 per cent. Prices are steady at 60 to 70 off for bolts and nuts and 3.10c, Pittsburgh, for large rivets.

New York, April 29.—While still slack, bolt and nut demand is showing a slight pickup. Eastern mills generally are operating at about 60 per cent, compared with 55 to 60 recently and in the case of one mill, operations now range 70 to 75 per cent, the gain being due largely it is understood, to business from other districts.

Philadelphia, April 29.—Some large rivet consumers believe recent bar concessions should be applied to the rivet price but lack of tonnage inquiries has delayed a test. Specifications against contracts at 3.10c, base, for second quarter continue fair. Bolt and nut demand is slow at 60 and 70 off list.

Chicago, April 29.—Due in part to slightly improve specifications from the automotive industry, a more favorable outlook is shown in bolts, nuts and rivets. April orders for nuts and bolts are about equal to March but much below April, last year. Jobber orders are steady. Prices are unchanged. Large structural rivets are 3.20c, Chicago, and rivets 7/16-inch and smaller are 70 to 70 and 10 off.

Ferroalloy Prices

(In dollars, except Ferrochrome)

*Ferromanganese, 78 to 82 per cent tidewater, duty paid	$99.00
*Ferromanganese del. Pittsburgh	103.79
Spiegeleisen, 19 to 21 per cent, domestic furnace spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Do, 75 per cent	13.00 to 15.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.35 to 1.40
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do, one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Scrap

Dullness Continues with Some Further Decline—Melt Holds at Fair Rate Generally

LITTLE change is seen in iron and steel scrap, the tendency being downward, though the recession is slow and some markets are stationary. Melters are consuming fairly good tonnages and this is giving some strength. Heavy melting steel has yielded less than other grades and quotations on it are fairly steady.

Chicago, April 29.—As a result of extensive selling, virtually all grades of iron and steel scrap except heavy melting steel are weaker. Declines of 25 to 50 cents have been made in consumer sales of steel angle bars, iron car wheels, heavy forge scrap, railroad malleable, railroad coil and leaf springs, and No. 1 railroad wrought. Machinery cast grades also are weaker. Railroad couplers and knuckles have been graded down $1. Sharp recessions also have been made in 2 and 3-foot rail ends. Tonnage buyers are able to purchase 3-foot rails at $15.75, gross, delivered. The recent Santa Fe railroad list brought a top price of $15.25, delivered, for 3-foot rail crops. Heavy melting steel is steady on the basis of $13 to $13.50, despite weakening in other lines. Two tonnage sales at $13.50 have helped stabilize the melting steel quotations. The recent depressions in outside markets and the unfavorable outlook as to increases in automotive steel orders, have added to the depression.

Boston, April 29.—There is no change of note in the scrap market. Some buying by eastern and western Pennsylvania mills has developed in the

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 13.00
Boston, dealers	9.00 to 9.50
Buffalo, No. 1	14.00 to 15.00
Buffalo, No. 2	12.00 to 12.50
Chicago	13.00 to 13.50
Cincinnati, deal.	11.50 to 12.00
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.50 to 13.00
Detroit, No. 1 deal.	11.50 to 12.00
Detroit, No. 2 deal.	10.00 to 10.50
East Pa., del. mill	13.50 to 14.00
N. Y. deal R. R.	10.00 to 10.50
N. Y. deal No. 2	7.50 to 8.00
N. Y., deal. yd.	7.25 to 7.50
Pittsburgh No. 1	15.50 to 16.00
St. Louis, No. 1 sel.	13.00 to 13.25
Federal, Ill.	12.00 to 12.25
Granite City, Ill.	11.00 to 11.50
Valleys, No. 1	16.00 to 16.50

COMPRESSED SHEETS

Buffalo (dealers)	12.00 to 12.50
Chicago	12.00 to 12.50
Cleveland	12.50 to 13.00
Detroit, dealers	11.25 to 11.75
E. Pa. new mat.	13.00
Pittsburgh	15.50 to 16.00
Valleys	15.50 to 16.00

BUNDLED SHEETS

Buffalo	9.50 to 10.00
Cincinnati, deal.	10.25 to 10.75
Cleveland	10.50 to 11.00
Eastern Pa.	11.00 to 11.50
Pittsburgh	14.00 to 14.50
St. Louis	8.50 to 9.00

SHEET CLIPPINGS LOOSE

Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Detroit, dealers	8.50 to 9.00
St. Louis	8.50 to 9.00

STEEL RAILS SHORT

Birmingham	11.00 to 12.00
Boston, dealers	8.00 to 9.50
Buffalo	17.00 to 17.50
Chicago (3 feet)	15.25 to 15.75
Chicago (2 feet)	15.75 to 16.25
Cincinnati, deal.	17.75 to 18.25
Detroit, dealers	15.50 to 16.00
Pittsburgh, (open-hearth, 3 ft. and less)	19.50 to 20.00
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	10.00 to 11.00
Boston, consumers	10.50 to 11.00
Buffalo	11.75 to 12.00
Chicago, net	10.00 to 10.50
Cinn., deal. net	8.25 to 8.75
Detroit, net, deal.	9.00 to 9.50
Eastern Pa.	10.50
N. Y., deal., mill	7.50 to 8.00
St. Louis	10.75 to 11.25

COUPLERS, SPRINGS

Buffalo	17.00 to 18.00
Chicago	14.50 to 15.00
Eastern Pa.	19.50 to 20.50
Pittsburgh	19.50 to 20.00
St. Louis	14.00 to 14.50

ANGLE BARS—STEEL

Chicago	14.50 to 15.00
St. Louis	12.00 to 12.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	17.50 to 18.00
Cleve. billet and bloom crops	18.50
Eastern Pa.	20.00 to 21.00
Pitts. billet and bloom crops	21.50 to 22.00
Pitts. Sheet bar crops	21.00 to 21.50

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
St. Louis	13.00 to 13.50

SHOVELING STEEL

Chicago	13.00 to 13.50
Cleveland	11.00 to 11.50
St. Louis	12.00 to 12.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	10.00 to 10.50
Buffalo, No. 1	10.50 to 11.00
Buffalo, No. 2	14.00 to 14.50
Chicago, No. 1	12.75 to 13.20
Chicago, No. 2	13.00 to 13.50
Cincinnati, No. 2	11.50 to 12.00
Eastern Pa.	15.50 to 16.00
N. Y., No. 1 deal.	11.75 to 12.00
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	11.00 to 11.25
St. Louis, No. 2	12.00 to 12.25

SPECIFICATION PIPE

Boston	8.00 to 8.50
Eastern Pa.	13.50 to 14.00
New York, deal.	9.25 to 9.75

BUSHELING

Buffalo No. 1	12.50 to 14.00
Chicago, No. 1	11.00 to 11.50
Cinn., No. 1 deal.	9.25 to 9.75
Cinn., No. 2	6.25 to 6.75
Cleveland, No. 2	9.50 to 10.00
Detroit, No. 1 new deal.	10.25 to 10.75
St. Louis, No. 1	9.50 to 10.00
Valleys, new No. 1	15.00 to 15.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston, dealers	5.00 to 5.50
Buffalo	9.25 to 9.75
Chicago	7.50 to 8.00
Cincinnati, deal.	7.75 to 8.25
Cleveland	9.00 to 9.50
Detroit	7.00 to 7.50
Eastern Pa.	10.50
New York, deal.	7.00
Pittsburgh	10.50 to 11.00
St. Louis	6.75 to 7.25
Valleys	11.25 to 11.75

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	5.00 to 5.50
Buffalo	11.00 to 11.25
Cincinnati, deal.	8.00 to 8.50
Cleveland	10.00 to 10.50
Detroit, dealers	8.00 to 8.25
Eastern Pa.	10.00 to 10.50
New York, deal.	6.50
Pittsburgh	10.50 to 11.00

CAST IRON BORINGS

Birmingham, chem.	12.00 to 13.00
Birmingham, plain	7.00 to 8.00
Boston, chem.	9.00 to 9.25
Boston, dealers	5.00 to 5.50
Buffalo	10.50 to 11.00
Chicago	9.25 to 9.75
Cincinnati, deal.	8.00 to 8.50
Cleveland	9.50 to 10.00
Detroit, dealers	8.00 to 8.25
Eastern Pa.	10.50 to 11.00
Eastern Pa, chem.	14.00
New York, deal.	6.50 to 7.00
Pittsburgh	10.50 to 11.00
St. Louis	9.25 to 9.50

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	10.50 to 11.00
Chicago, net	10.75 to 11.25
Cincinnati	9.00 to 9.50
Eastern Pa.	11.00 to 11.50
New York, deal.	7.75
St. Louis	10.25 to 10.50

FORGE FLASHINGS

Boston, dealers	8.00 to 8.25
Buffalo	12.00 to 12.50
Cleve. over 10 in.	11.25 to 12.75
Detroit	10.00 to 10.50

FORGE SCRAP

Boston, dealers	7.00 to 8.00
Chicago	16.00 to 16.50
Eastern Pa.	12.50 to 13.00

ARCH BARS AND TRANSOMS

Chicago, net	16.75 to 17.25
St. Louis	17.50 to 18.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	12.50 to 13.00
Chicago steelworks	10.50 to 11.00
Cleveland	12.00 to 12.50
Eastern Pa.	13.00
Pittsburgh	14.00 to 14.50
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	14.00 to 15.00
Boston, ship point	16.00 to 16.50
Buffalo	16.00 to 16.50
Chicago	17.90 to 18.50
Eastern Pa.	22.00 to 22.50
Pittsburgh	21.00 to 21.50
St. Louis	18.50 to 19.00

SHAFTING

Boston, ship point	13.00 to 15.00
Chicago	16.25 to 16.80
Eastern Pa.	18.25
New York, deal.	14.00 to 14.50
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron	13.25 to 13.75
Buffalo, steel	17.00 to 18.00
Chicago, iron	14.25 to 14.75
Chi., rolled steel	16.00 to 16.50
Cincinnati	12.00 to 12.50
N. Y., iron, deal.	10.50 to 11.00
Pittsburgh, iron	14.00 to 15.00
Pittsburgh, steel	19.50 to 20.00
St. Louis, iron	13.50 to 14.00
St. Louis, steel	15.00 to 15.50
East Pa. steel	19.50 to 20.50
East Pa. iron	15.00

NO. 1 CAST SCRAP

Birmingham, cup.	10.00 to 11.00
Buffalo	13.25 to 13.75
Boston, textile	12.00 to 13.50
Chicago, mach.	15.10 to 15.70
Chicago, railroad	14.60 to 15.10
Chicago, agri.	13.15 to 13.70
Cincinnati, mach. cupolas, gross	18.25 to 18.75
Cleveland, cupola	14.50 to 15.00
Detroit, net deal.	10.50 to 11.00
East Pa. cupola	15.50
N. Y. cup. deal.	10.85
N. Y., del. local foundries	15.00
Pittsburgh, cupola	15.00 to 16.00
San Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	13.50 to 14.00
St. Louis, No. 1	12.50 to 13.00

HEAVY CAST

Boston	10.50 to 11.00
Boston, mach. cast.	14.50 to 15.25
Buffalo, breakable	9.75 to 10.25
Cleve., breakable	10.50 to 11.00
Detroit, auto, net Dealers	12.00 to 12.50
Detroit, break. deal	7.00 to 7.50
Eastern Pa.	13.00 to 13.50
New York, deal.	9.75 to 10.50
Pittsburgh	11.50 to 12.00

MALLEABLE

Boston, railroad	16.00 to 16.50
Buffalo	16.00 to 16.50
Chicago, agri.	14.75 to 15.25
Chicago, railroad	16.25 to 16.75
Cinn., R. R. deal.	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	17.00 to 17.50
Detroit, auto deal.	14.00 to 14.50
St. Louis, rail	13.50 to 14.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	13.00 to 14.00
Boston	10.75 to 11.00
Buffalo	13.50 to 14.00
Chicago	15.00 to 15.50
Eastern Pa.	15.50 to 16.00
New York	10.50 to 11.00
St. Louis	13.50 to 14.00

LOCOMOTIVE TIRES

Chicago, cut	16.50 to 17.00
St. Louis No. 1	13.25 to 13.75

LOW PHOS. PUNCHINGS

Chicago	14.00 to 14.50
Pittsburgh	19.00 to 19.50
Eastern Pa.	19.00
Buffalo	17.00 to 17.50

past few days, but on a limited scale. A boat will load a fairly good tonnage from this port for Japan next month, but buying for this consignment is being done slowly.

New York, April 29.—Fresh consuming demand continues light, with further weakness reflected in the local dealers' scrap market. Heavy breakable cast has been marked down 25 cents, to $9.75, New York, and skeleton steel, 50 cents, to $5.75, New York. No. 2 steel also is easier at a spread of $7.50 to $8. The latter revision is attributable in part to a recent sales for Pencoyd, Pa., on which dealers are paying $11, delivered. The leading Claymont, Del., consumer has purchased a moderate tonnage of No. 1 railroad steel at $13.50, delivered, this being a reduction of 25 cents under the price paid for a small tonnage a few days previous.

Philadelphia, April 29.—A small lot heavy melting steel has been sold at $13.50, delivered in this district, and while some dealers are holding for $14 others have offered to sell for $13.50 Stove plate is off 50 cents on sales at $10.50 and steel shafting off 75 cents on sales at $18.25.

Pittsburgh, April 29.—Iron and steel scrap is quieter, with an easy tone as mill buying remains light. Good scrap is not plentiful but dealers are able to pick up heavy melting at $15.50 and this grade is quotable at $15.50 to $16 on the basis of the last mill purchase. Most other grades are nominally unchanged.

Buffalo, April 29.—Dealers are making offers for No. 1 and No. 2 heavy melting steel, which lend strength to reports that sales have been or are about to be made. Dealers will pay $13.75 for No. 1 steel for Bethlehem and $12 to $12.25 for No. 2. It is said scrap recently sold to another consumer at $14.50, delivered, came by barge canal. Receipts of scrap by lake from Detroit are starting at a brisk pace. Dealers have revised prices on specialties downward 50 cents to as much as $1.25 a ton compared with quotations of April 1.

Cleveland, April 29.—The leading consumer of iron and steel scrap continues to accept shipments of No. 1 melting steel freely, for which dealers are paying $13.75. A second consumer still limits incoming tonnage, while a third steelworks consumer has cut off movement coincident with reduced operations. No consumer purchases have been made during the past few days. The last purchase of steel was at $14.10 and of machine shop turnings at $9.75.

Detroit, April 29.—Little change has taken place in iron and steel scrap for a fortnight. Blast furnace grades are sentimentally weaker but prices have not been changed. Automotive scrap lists show little change except that Chrysler and Chevrolet offer 15 to 25 per cent more than last month.

Cincinnati, April 29.—Prices on iron and steel scrap remain unchanged in a listless market. Cupola grades are especially weak. Dealers are holding stocks low with supplies only moderate at current quotations.

St. Louis, April 29.—Weakness continues the feature in iron and steel scrap. Except in blast furnace grades, which are in fair demand and steady, the market throughout is decidedly feeble. Further cuts were made in heavy melting steel, the new figures marking a new low on the present downward movement. Cast borings were easier, and a cut of 50 cents per ton was made in malleable grades. Steel wheels and springs and bundled sheets also suffered declines.

Birmingham, Ala., April 29.—Iron scrap is listless but steel material is finding better demand. Heavy melting steel is quoted at $10.75 to $13.

Toronto, Ont., April 29.—While new business is still below expectations iron and steel scrap sales have increased. Several fairly large spot orders were closed and a couple of consumers placed contracts for machinery cast and other iron grades for delivery to the end of this quarter.

Canadian Scrap

Dealers Buying Prices

MONTREAL
Per Gross Ton

Iron axles	$19.00
Steel axles	17.00
Car wheels	14.50
Stove plate	12.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	14.00
Iron axles	16.00
Heavy melting steel	9.00
Turnings	7.00
No. 1 mach. cast (net)	15.00
Malleable (net)	11.50

Semifinished Steel

Market More Active—April Shipments Heavier Than March

SEMIFINISHED STEEL PRICES, PAGE 144

Pittsburgh, April 29.—New business in semifinished material makes a relatively better showing than a month ago although aggregate tonnage still is light and is confined to orders for prompt shipment. Shipments of rerolling billets, slabs and sheet bars are slightly ahead of the rate a month ago. Forging billets continue only fairly active in small lots with the market generally steady at $38. Small orders for rerolling billets, sheet bars and slabs usually take $33, although preferred customers pay less. Wire rods remain fairly steady at $38, with skelp continuing 1.80c to 1.85c.

Philadelphia, April 29.—Demand for billets is slow and prices are unchanged. Sales of wire rods are fair, at $38, base Pittsburgh.

Chicago, April 29.—Quick shipment is urged against second quarter contracts for semifinished steel. Demand appears more active than in first quarter, and shipments are ahead. Second quarter contract sales have been completed, and the price of $35, Chicago, for billets, blooms and slabs, 4 x 4-inch, is nominal. Wire rods are $39, Chicago.

Youngstown, O., April 29.—Nonintegrated mills continue to buy sheet bars and billets as needs appear, and shipments are fairly steady. Billets, slabs and sheet bars are firm at $33, Pittsburgh and Youngstown, wire rods hold at $38, Pittsburgh and Cleveland.

Cleveland, April 29.—Demand for semifinished steel is fairly steady at the rate noted in the past several weeks. The leading merchant producer continues operating 12 of its 14 open hearths, with about ten days' work scheduled ahead. Prices hold at $33, base, Youngstown and Cleveland, for sheet bars, billets and slabs.

Operating Rates

Districts Maintain Last Week's Rise—No Major Changes Noted

Cleveland—Steel production is at 85 per cent for the second consecutive week, but Otis Steel Co. has stepped up steelmaking to 100 per cent with all eight open hearths pouring. Twenty-nine of 34 are operating for the district, due to another local company closing one of its furnaces for the week. The leading interest continues with 12 or 13 open-hearth furnaces on and its pig production holds.

Buffalo—Demand for the general steel line fails to show anticipated improvement. Open-hearth operations continue at 70 per cent with small prospect of immediate increase. Most mills are on single turn.

Pittsburgh—Steelmaking is slightly above 75 per cent, several open hearths being added by independent mills during the week. Sheet production is unchanged at 70 to 75, with tin plate continuing 85. Strip operations are slightly higher at 65 to 70 with pipe holding at 50 to 60.

Youngstown, O.—Mill operations hold steady at 70 per cent. Independent steel production, with its 38 of 51 open hearths on, is above this average. Corporation steel output is unchanged at 65 to 70. Independent steel mill output, with 94 of 120 units on, is unchanged, but some plants are operating fewer than normal turns per week. Strip will be considerably higher, with all the district's mills engaged. This means production rises to 85 per cent. All tin plate mills are at 75 and pipe mill production at 60 is unchanged.

Chicago—Open-hearth output is about 95. No change is shown in steelworks blast furnace operations, 27 of 36 being active. Illinois Steel Co. still is holding in blast a furnace at South Chicago which has been scheduled to come out for relining. Rail mills remain close to capacity, as does plate production. Bars are at 90 and structural output about 80.

Birmingham, Ala.—Open-hearth furnace operations are scheduled at 95 per cent, Gulf States Steel Co. now having five of six furnaces on. Finishing mills continue slightly over 75. Tentative steel schedule for May will be as at present.

Bars

Steady Demand Continues Close to March Volume—Market 1.80c, Pittsburgh; 1.90c, Chicago

SPECIFICATIONS for soft steel bars are holding close to the March tonnage, indicating the recession is not progressive. Heavier automotive demands are developing for May. At Chicago deliveries are somewhat deferred, and some mills are on a seven-day schedule. Implement and tractor activity is an element of strength there. Automotive needs are irregular.

BAR PRICES, PAGE 143

Chicago, April 29.—April bar mill specifications held closely to the March volume. Slightly heavier automotive shipments have been scheduled for May. Implement and farm tractor production is steady, hay tool and harvesting equipment apparently being unaffected by recent dry weather in Western Kansas and parts of Oklahoma and Texas. In general, bar as well as plate and structural bookings are equivalent to existing shipping rates. Miscellaneous railroad bar, plate and shape tonnage for maintenance work, car construction and repairs is regarded as fully up to the normal seasonal consumption. Bar mill deliveries are two to five weeks and operations are close to 90 per cent. Several bar mills have been operating on a 7-day basis for some weeks. Spot and future sales of soft steel bars are at 1.90c, Chicago, as a base. Bar iron is quoted 1.90c, Chicago. Car shop specifications for bar iron remain moderately heavy.

New York, April 29.—Slight improvement appearing in soft steel bars last week has been maintained. Prices are steady at 1.80c to 1.85c, Pittsburgh. Deliveries are two to three weeks on the general run of business.

Philadelphia, April 29.—Steel bar specifications continue to reflect shrinkage and with some makers the past week was the dullest of the year. The price continues 1.80c to 1.85c, Pittsburgh.

Pittsburgh, April 29.—Steel bar demand continues fairly steady but is slightly less active than early in April. Automotive specifications still are spotty and little improvement is noted in requirements of other consuming groups. The market gradually is settling to a flat 1.80c, with 1.85c applied in fewer instances.

Cleveland, April 29.—Demand for soft steel bars continues listless, with sales by some producers tapering slightly in the past few days. Improvement in the automotive industry is slow, while bolt, nut and rivet makers are barely holding their own. Local mills quote 1.80c, base, mill, with outside makers quoting 1.80c, Pittsburgh, or Cleveland, according to destination.

Rise in Foundry Tonnage

Cleveland, April 29.—With an average monthly production during the past three years of 30,587 tons, 142 gray iron foundries reported production of 28,386 tons during March, or at 92.8 per cent of normal. February was on the basis of 85.5 and March, 1929, at 135.4. New England and Canada with 5673 tons were at an 82.8 per cent of normal rate; all other states east of the Mississippi river made 11,586 tons, or 86.7 per cent; and all west of the river were high with 11,128 tons, which registered a percentage of 107.2. Production data are reported by Gray Iron institute, Terminal Tower building, Cleveland.

New Safety Records Set at Middletown, O.

The Middletown, O., works of the American Rolling Mill Co. set a new company safety record at midnight, April 22, by completing 1,300,000 manhours without lost time because of accident. The record which started Feb. 21, 1930, still is unsmirched. Middletown held the previous company plant manhour record. In 1929 the plant had 32 accidents for a period in which this year it has only two. This is a frequency of 1.0 for the first quarter.

During the same period in 1929 the company as a whole had 86 accidents. In 1930 this was reduced to 26, or a frequency of 4.3 for the first quarter. The entire organization recently set a company safety record when all the plants operated 11 days without a lost time accident. The previous record was ten days.

Plates

Market Reflects Stronger Demand—Western Gas Line May Take 300,000 Tons

PLATE demand in the Middle West is heavier, with mills in the Chicago district continuing operations near capacity. April shipments were slightly ahead of those of March. Revised estimates of the Texas-Chicago gas line, based on heavier plates, now place requirements as high as 300,000 tons. Additional vessel tonnage is pending in the East.

PLATE PRICES, PAGE 143

Chicago, April 29.—Plate mill operations in the district remain near capacity, with deliveries in three to six weeks. April plate shipments were slightly larger than those of March. Shipments for natural gas line fabrication now obligated are expected to continue at the existing high level until well into June, and it is probable new tonnage will be let by that time on pending work, which includes the Texas-Chicago gas line of about 950 miles. Estimates now are that the latter project may take more than 300,000 tons, instead of 200,000 to 250,000 tons as recently estimated, because of the possibility of using heavier plates. A line is being projected from the Texas Panhandle to Stevens county, Nebr. Tank plate inquiry stands at nearly 20,000 tons. A local fabricator has purchased 400 tons for two tanks in the Southwest, and another 1000 tons for oil country refinery work. Car shop specifications are holding up well. The price of 1.90c, Chicago, is regarded as the base quotation for plates.

Pittsburgh, April 29.—Plate specifications are heavier and recent improvement will bring total tonnage for the month to slightly better than the March volume. Demand is fairly well distributed with freight car builders steady buyers. Tank work is light. Production of large diameter pipe as yet has not accounted for any substantial tonnage in this district, although additional installations for making electrically-welded pipe are expected to alter this situation in the near future. Plates generally are 1.80c, Pittsburgh.

New York, April 29.—Plates continue 1.85c to 1.90c, Coatesville, with demand showing little gain. Ship work holds considerable promise for the early future with two boats, requiring a total of about 18,000 tons of plates, scheduled for placing May 1 for United States Lines. Two larger boats for United States Lines are likely to be placed in two months, specifications having been altered. Six boats for United Fruit Co., requiring approximately 28,000 tons of plates and shapes have been placed, three going to Newport News Shipbuilding & Dry Dock Co. and three to Bethlehem Shipbuilding Corp. Ltd., Fore River, Mass.

Cleveland, April 29.—A steady inflow of small and moderate size orders for plates is noted here. Bids were

to be closed April 30 on the Erie, Pa., sewage plant pipe line, 9000 feet of 72-inch pipe, requiring about 3000 tons of plates, but bidders are informed that this project may go to concrete pipe. The Barberton, O., line may not be laid this season. Bids will close next month on Detroit's 500-ton line. Car and locomotive plate tonnage is scarce. Plates are 1.75c to 1.80c, base, Pittsburgh.

Philadelphia, April 29.—A price of 1.85c, base, Coatesville, is more frequent on plates, but the majority of orders from a numerical standpoint continue at 1.90c. Demand is dull.

CONTRACTS PLACED

2200 tons, plates and shapes, tanks for Pure Oil Co., 600 tons at Mt. Pleasant, Mich., and 1600 tons at Bay City, Mich., to Warren City Tank & Boiler Co.
1700 tons, tank work in Michigan for unstated buyer, to Chicago Bridge & Iron Works.
1450 tons, for 500 car underframes for Pacific Fruit Express Co., to Western Pipe & Steel Co.
500 tons, additional for gas holders for Southern Counties Gas Co., Los Angeles, to Western Pipe & Steel Co.
150 tons, miscellaneous boiler jobs, Seattle, to Puget Sound Machinery Depot.
100 tons, 17 storage tanks for Union Oil Co., Seattle, to Seattle Boiler Works.

CONTRACTS PENDING

150 tons, for 20-inch shore pipe for port commission, Oakland, Calif. Pacific Coast Engineering Co. low.

Make Girdler President-Chairman of Republic

Cleveland, April 29.—Directors of the Republic Steel Corp. today elected Tom M. Girdler, chairman, to fill the office of president made vacant last week by the death of Elmer T. McCleary. Mr. Girdler will serve both as chairman and president of the company.

The directors also appointed an executive committee for the company composed of the following directors: W. G. Mather, J. O. Eaton, Edward B. Greene, Myron A. Wick, John T. Harrington and Tom M. Girdler.

Three new directors were added to the board, including J. O. Eaton, partner of Otis & Co., Cleveland; John S. Brookes Jr., associated with the Koppers interests, Pittsburgh; and D. W. Cooper, patent lawyer of New York.

Mr. Brookes Jr. was formerly a director of the Republic Iron & Steel Co. and Mr. Eaton formerly was a director and member of the executive committee of the Central Alloy Steel Corp., which merged with the new company.

Winton Engine Works, 2116 West 106th street, Cleveland, will add a 55 x 133-foot addition to its 2-story plant.

Pipe

150,000-Ton Pipe Line Placed—Cast Buying Active—3000 Tons Up In Northwest—East Is Busy

ORDERING of 150,000 to 200,000 tons of line pipe from National Tube Co. interrupts an otherwise dull steel pipe market. Steady buying of cast pipe by private and public interests keep foundries active, assuring high operations throughout the summer. Long Island, N. Y., bought 4000 feet in three sizes. Kent, Wash., has 3000 tons up, while Chicago, will buy 1450 tons.

PIPE PRICES, PAGE 144

Chicago, April 29.—Pressure pipe orders are maintaining a steady flow. Chicago will take bids May 7 on 1450 tons of 6, 8 and 12-inch pipe and 100 tons of cast fittings. Minneapolis closed on 240 tons of 16-inch pipe in 16-foot lengths and Oak Park, Ill., will close bids this week on 160 tons of 6 to 12-inch water pipe. Chicago delivered prices are unchanged on the basis of $45.20 to $46.20 for 6 to 24-inch diameters.

Boston, April 29.—All developments in the cast pipe industry all are favorable. Hanover, Mass., will open bids May 1 on approximately 20 miles. Palmer, Mass., is calling for bids on 400 tons of 6 to 16-inch. Winthrop, Mass., awarded 140 tons of 16-inch and Cumberland, R. I., placed 250 tons. Private business holds good, with public utilities placing requirements regularly. Foundry capacity is well taxed for second quarter and prospects are bright for third quarter.

New York, April 29.—Delayed delivery on cast iron pipe placed under new specifications calling for cement lining and dipping is causing some concern. New York yard stocks are low. In some instances contractors are slowed up for lack of material. Unlined pipe shipments to the city yards are on schedule, but comparatively little of this has been ordered. Additional handling, a 72-hour wait after lining and before dipping and other new operations tend to delay pipe placed under these new specifications. Cast pipe buying and inquiry have slowed up. Prices are firm at $37 to $38, eastern foundry. Most foundries have fair backlogs. New York has still considerable tonnage to place.

Pittsburgh, April 29.—Standard pipe business still is slow. While April tonnage does show a slight gain over that of March, the improvement is considerably less than usually is experienced at this period. Slow building operations since the first of the year largely are responsible, although improvement is expected from now on. Oil country goods remain dull. Bids will be taken May 27 on four miles of 20-inch cast iron water mains for the new basin six miles west of Youngstown, O., to be laid to Niles, O. A number of line pipe projects continue active. Pipe mill operations continue 50 to 60 per cent.

National Tube Co. has received an order from Missouri-Kansas Pipe Line Co. for 375 miles of 25-inch and 350 miles of 22-inch, involving between 150,000 and 200,000 tons of line pipe. This material will be seamless pipe but a portion may be produced by the electric welding process which the National company now is installing. Production is to start within three weeks, with shipments spread over the next six months.

Birmingham, Ala., April 29.—Pressure pipe plants are speeding up production. Shipments also are receiving impetus as spring business is being received steadily and backlogs are accumulating. Lettings have been coming in from various sections in the South West and Northwest. Quotations have been unchanged for many months.

CONTRACTS PLACED

4000 feet, 4, 6 and 8-inch cast iron pipe, Jones Beach development, Long Island, N. Y., to United States Pipe & Foundry Co.
250 tons, 6 to 12-inch cast pipe, Cumberland, R. I., to R. D. Wood & Co.
240 tons, 16-inch cast pipe, Minneapolis, to American Cast Iron Pipe Co.
200 tons, 16 and 20-inch cast iron pipe, New York, to United States Pipe & Foundry Co.
200 tons, 6-inch cast pipe, Littleton, Mass., to Donaldson Iron Co.
170 tons, 6-inch cast pipe, Bedford, Mass., to Donaldson Iron Co.
161 tons, 4 to 8-inch class 150 cast pipe, county waterworks district No. 10, Los Angeles, to American Cast Iron Pipe Co.
150 tons, 8-inch cast pipe, Medway, Mass., to Donaldson Iron Co.
140 tons, 16-inch cast pipe, Winthrop, Mass., to Warren Foundry & Pipe Co.

STEEL PIPE AWARDS

150,000 to 200,000 tons, 375 miles 25-inch and 350 miles 22-inch seamless line pipe, Missouri-Kansas Pipe Line Co., to National Tube Co.

CONTRACTS PENDING

3000 tons, 12 to 18-inch cast pipe, Kent, Wash., with wood or concrete pipe as alternates; bids closed April 28.
1450 tons, 6, 8 and 12-inch cast pipe and 100 tons of cast fittings, Chicago; bids May 7.
700 tons, 4 to 12-inch cast iron pipe, Phelps, N. Y.; bids in.
500 tons, cast pipe, Renton, Wash.; bids in.
400 tons, 6 to 16-inch cast pipe, Palmer, Mass.; no date set for bidding.
309 tons, 6 and 8-inch class 150 cast pipe, San ucts Co. and United States Pipe & Foundry Francisco; bids April 28.
300 tons, 4 to 12-inch class B centrifugal cast pipe, Bellingham, Wash.; bids May 1.
100 tons, fittings, New York; Ray-Mount Products Co. and United States Pipe & Foundry

Co. low bidders.
Unstated tonnage, 4 to 12-inch, Oakfield, N. Y.
Unstated tonnage, approximately 20 miles of 16-inch cast pipe, Hanover, Mass.; bids May 1.

Tin Plate

Specifications Larger—Orders Placed for June Shipment

TIN PLATE PRICES, PAGE 144

Pittsburgh, April 29.—Tin plate consumers are more liberal with specifications, orders being placed for June shipment. Some producers still are operating with little backlogs, although recent orders for others have built up a fair tonnage on books. Canmakers are not pressing for earlier delivery of tin plate but specifications have been holding to a fair seasonal rate. Operations are unchanged at around 85 per cent, with some independent producers holding at capacity.

Iron Ore

Requirements More Clearly Defined—Shipping Starts—Rates Established

IRON ORE PRICES, PAGE 144

Cleveland, April 29.—Consumers of Lake Superior iron ore have indicated more definitely their requirements for this season, and some of the leading producers now predict shipments will not fall below 55,000,000 tons. Open market tonnage still is scarce, most of the activity so far being limited to commitments on term contracts. The first shipments of ore from the head of the lakes are now enroute to lower lake ports.

Iron ore and coal vessel rates have been re-established for this season on the same basis as last year. From the head of Lake Superior to Lake Erie ports the rate on iron ore is 83 cents a ton; from Marquette 76 cents, and from Escanaba to Lake Erie ports 65½ cents. The rate from Escanaba to Chicago is 55 cents. All of these include the unloading charge of 13 cents a ton. This is the seventh consecutive season for the rates at these levels.

J. & L. Appoints New Superintendent

Harry Saxer, formerly assistant general superintendent of Aliquippa works of Jones & Laughlin Steel Corp., Pittsburgh, was this week appointed general superintendent to succeed C. M. White, resigned.

H. M. Carr, superintendent of the wire department, succeeds Mr. Saxer, and R. M. Hussey, formerly superintendent of the electrical department, succeeds Mr. Carr.

Stinson Aircraft Corp.'s sales increased 616 per cent from Jan. 1 to March 15 over the same period 1929. Production increased 540 per cent.

Sheets

Automotive Tonnage Heavier—Demand From Miscellaneous Lines Broadening

SPECIFICATIONS for automotive sheets have improved, with the two leading makers taking most of the tonnage. Orders from other consuming lines are steady, farm implement builders taking larger shipments than a year ago. A broadening in demand is reported by valley mills. Prices continue to show some irregularity. Blue annealed and black are lower in the East.

SHEET PRICES, PAGE 143

Pittsburgh, April 29.—Incoming sheet tonnage is holding fairly well to the rate of the preceding several weeks, but business is not sufficient to provide operations of better than 70 to 75 per cent. Automative specifications are heavier, although the two leading interests still account for the bulk of the tonnage. A steady demand is coming from electrical equipment and farm implement builders, requirements of the latter being heavier than a year ago. Manufacturers of steel drums and steel furniture also are operating at a good rate. Prices fail to show a stronger tone, although what weakness is apparent generally is centralized in a few points, with the Detroit market still a leading center for the lower quotations. Black sheets generally are 2.65c, with 2.55c applied in some instances. Galvanized are 3.30c to the consumer. Weakness is noted in blue annealed material, with 2.15c for sheets and 2.00c for plates quoted more frequently. The market generally remains 2.25c and 2.10c. Autobody continue 3.80c.

New York, April 29.—Galvanized sheets are showing slightly more strength at 3.25c to 3.30c, base, Pittsburgh, but black sheets are softer, now holding at 2.55c to 2.60c, a reduction of $1 a ton. Blue annealed sheets are 2.00c to 2.10c, base, Pittsburgh, and blue annealed plates 2.15c to 2.20c. Demand generally is quiet.

Philadelphia, April 29.—Blue annealed sheets made in jobbing mills, now are 2.00c to 2.10c, base, Pittsburgh, for No. 10 gage, and $3 a ton higher for No. 13 gage. This reduction appears to be largely due to meeting competition with strip steel, although strip continues to sell in many instances materially below blue annealed sheets. Current prices of strip sheets are 1.85c to 2.00c, base, Pittsburgh, for heavy gages, plus $3 a ton for the light gages. In some instances where substantial tonnages have been closed considerably less has been done. Black sheets usually are 2.65c, base, Pittsburgh, with ordinary black occasionally selling down to 2.60c, and finishes taking higher extras occasionally selling down to 2.55c. Galvanized sheets are easy at 3.25c to 3.30c, base, Pittsburgh.

Youngstown, O., April 29.—A broader demand has developed for sheets, continuing independent mill operations at 78 per cent. The greater part of the demand for full-finished sheets still is coming from makers of auto parts. The volume of common sheet business appears to be improving slowly each week. While a number of mills have considerable tonnage of black sheets on their books at 2.65c, the 2.55c price is more general. Autobody sheets are holding at 3.80c, Pittsburgh, and galvanized at 3.30c. Nos. 9 and 10 gage blue annealed are 2.00c to 2.10c, and No. 13, 2.20c to 2.25c.

Cleveland, April 29.—Sheet demand shows only meager improvement, orders being mainly for work in hand. Autobody and parts manufacturers are taking slightly more material. One body builder here has advanced its schedule from five days a week to five and one-half days and has released attractive tonnages. Prices still are irregular. Mills needing 1-pass black tonnage will go to 2.55c, Pittsburgh, and after obtaining a good size order will return to 2.65c. One mill sold one or two lots at the lower figure on a valley basis. Autobody sheets selling in some large consuming centers at 3.70c, Pittsburgh, are quoted here at 3.80c, Pittsburgh. Galvanized sheets sell at 3.25c to 3.30c, Pittsburgh, and blue annealed at times are available at less than 2.10c and 2.25c, Pittsburgh, for No. 10 and No. 13 gages, respectively.

Cincinnati, April 29.—Consumers of sheets are holding orders to immediate needs, with mills operating at 60 per cent. Prices are firm.

Chicago, April 29.—Sheet mills in this district continue operating at about 75 per cent. The recent decline in sheet orders, particularly black and galvanized, has been due in part to seasonal conditions and in part to wet weather in a number of western consuming areas. Despite various concessions for tonnages, mill prices continue on the recent basis of 2.75c for No. 24 black, 3.40c for No. 24 galvanized, 2.20c for No. 10 and 2.35c, mills, for No. 13 blue annealed. The spread for No. 24 galvanized has been dropped, quotations now being on the basis of 3.40c, mills, and 3.45c for local delivery.

St. Louis, April 29.—Sheet sales booked by the leading local producer are the largest since early in March. Buying is fairly well diversified. The delivered price in St. Louis on galvanized sheets has been reduced from 3.72c to 3.62c, and on No. 24 black from 3.07c to 2.97c.

Structural Shapes

Larger Lettings More Numerous—First Eight Awards Total 26,800 Tons—Diversified Inquiries Total High—1.80c on Wane

PRICE weakness developed by keen competition which is becoming more current is bringing about the closing of numerous construction jobs. Eight or more awards in the 1000 to 6000-ton class, at least half of which number taking 4000 to 6000 tons apiece, were made. Included were two New York subways 11,500 tons, a Philadelphia office building, 6000 tons, and a Chicago hotel, 4100 tons. The award total this week is about three times last week's. Inquiry rates are well maintained in all sections. Chicago has a high school up, 5000 tons; New York an office building and hospital, 4000 tons apiece. While 1.80c, Pittsburgh base, has not entirely disappeared, large quantities develop lower figures. Awards this year to date are 200,000 tons behind the comparable 1929 period.

STRUCTURAL SHAPE PRICES, PAGE 143

New York, April 29.—Inquiry for structural shapes is heavier and a large amount of work is pending. Awards generally are light, although two subway sections were let, aggregating 11,500 tons. Many projects have been slow to progress, due in some instances to tight credit, which now shows tendency to ease. Shape prices are shaded on attractive tonnages, 1,895c to 2.00c being the nominal market with considerable business moving at the inside figure. Mills are not operating more than 70 per cent. Some smaller fabricators have picked up fair backlogs with the increased number of small projects closed. Larger fabricators, however, have reduced bookings. New York's school building program is lagging. One school calling for 3000 tons has been tentatively placed. The first inquiry, 2500 tons, in the Syracuse grade crossing elimination program is out. Office buildings in the financial district take 4000 and 1000 tons, respectively. Hospitals are active.

Boston, April 29.—Quietness still prevails in the structural shape market. A number of small lot tonnages, however, was placed and several such are up. The largest award, 300 tons for a bridge at Monroe, N. H., went to American Bridge Co. A garage up at Pawtucket, R. I., will take 192 tons.

Philadelphia, April 29.—Shape demand continues slow here with eastern mills operating 70 per cent or less. Prices are 1.75c to 1.85c, base, mill, on plain standard shapes, subject to differentials to large fabricators.

Pittsburgh, April 29.—Shape specifications showed slight improvement last week although total April tonnage is little changed from that of March. Operations of fabricators continue at a fair seasonal rate and while recent awards have included few large tonnages, backlogs have declined but moderately. Awards here mostly are less than 100 tons at a time. Inquiry is in fair volume. Plain shapes generally are 1.80c, Pittsburgh, on small tonnages.

Cleveland, April 29.—Construction work in the greater Cleveland area still is held up. Awards and inquiries are scarce. The general contract on Warner Bros.' theater at Youngstown, O., went to Heller Bros., Pittsburgh, 1270 tons. A large amount of work is being projected but is slow to reach the bidding stage. H. K. Ferguson Co. has the general contract on a building for Lorain Automatic Icer Co., on St. Clair avenue here, about 150 tons Mills report fair specifications. Prices are 1.75c to 1.80c, Pittsburgh, the minimum being the preferential figure for large tonnage users.

Chicago, April 29.—Public works, utility and railroad and highway bridge work, predominate in prospective structural tonnage. Commonwealth Edison Co. is spending several millions for substations in Chicago and suburbs. Illinois Bell Telephone Co. has approved $455,254 for plant extensions in Chicago, and $743,008 in Illinois outside of Chicago. Specifications for light shapes for car building are important. Structural mill operations are close to 80 per cent and deliveries are two to five weeks. Plain material is quoted at 1.90c, base Chicago.

CONTRACTS PLACED

6000 tons, Penn Mutual Life building, Philadelphia, to Bethlehem Steel Co.
6000 tons, subway route 106, section 4, New York, to American Bridge Co.
5500 tons, subway route 110, section 5, New York, to McClintic-Marshall Co.
4100 tons, addition to Morrison hotel, Chicago, to American Bridge Co.
1700 tons, Thirtieth street viaduct, Philadelphia, to Bethlehem Steel Co.
1500 tons, highway bridges, Herford and Townsend inlets, New Jersey, to Bethlehem Steel Co.
1000 tons, hospital, Central Islip, Long Island, N. Y., to Bethlehem Steel Co.
1000 tons, bodies for 500 refrigerator cars, Pacific Fruit Express Co., San Francisco, to Palm Bridge & Iron Works.
925 tons, for 500 car underframes, Pacific Fruit Express Co., San Francisco, to Western Pipe & Steel Co.
700 tons, bridge, Southern Railway, Burnside, Ky., to Mt. Vernon Bridge Co.
700 tons, column cores, factory and warehouse, Sixth avenue and Thompson street, New York, to McClintic-Marshall Co.
700 tons, building, Northern Ohio Power & Light Co., Youngstown, O., to American Bridge Co.
550 tons, shapes, angles, plates and miscellaneous steel for completion, first section, West Side elevated highway, New York, to La Cour Iron Works, through James Stewart & Co., general contractor.
500 tons, pier foundations, New Jersey, to McClintic-Marshall Co., through Arthur McMullen Co.
500 tons, city sewage plant, water board, New Orleans, to Ingalls Iron Works Inc.
500 tons, transmission towers, Milwaukee Electric Railway & Light Co., Milwaukee, to Blaw-Knox Co.
500 tons, Herbert Hadley vocational school, St. Louis, to Mississippi Valley Structural Steel Co.
500 tons, buildings, Inland Lime & Stone Co., Manistique, Mich., to Worden-Allen Co.
450 tons, gymnasium, University of Southern California, Los Angeles, to Consolidated Steel Corp.
450 tons, building, Hercules Powder Co., Wilmington, Del., to American Bridge Co.
425 tons, apartments, Forest Hills, N. Y., to J. Klein Iron Works Inc.
400 tons, factory, Hercules Powder Co., Wilmington, Del., to American Bridge Co.
350 tons, Girls' home, Lexington avenue, New York, to Hedden Iron Construction Co.
325 tons, three highway bridges, Lucas county, O., to American Bridge Co.
300 tons, bridge, Monroe, N. H., to American Bridge Co.
300 tons, nurses' home, Caledonian hospital, Brooklyn, N. Y., to Berkshire Structural Steel Co.
290 tons, school and fire department buildings, Santa Fe railroad, to Capital Iron Works.
250 tons, for 1004 ladders, Pacific Fruit Express Co., San Francisco, to Pacific Coast Engineering Co.
250 tons, building, Grinnell Co. Inc., Philadelphia, to Bethlehem Construction Co.
210 tons, miscellaneous shapes for several railroads, Chicago district, to Vierling Steel Works.
200 tons, garage, Gimbel Bros., Philadelphia, to Belmont Iron Works.
200 tons, bank building, Bank of United States, Jamaica, Long Island, N. Y., to A. E. Norton Inc.
200 tons, miscellaneous steel walkways, Michigan City Generating Co., Michigan City, Ind., to Vierling Steel Works.
200 tons, theater, Westchester, Pa., to Pittsburgh Bridge & Iron Works.
200 tons, building, Standard Oil Co., Baton Rouge, La., to Ingalls Iron Works Inc.
190 tons, underpass, Charlotte, N. C., to Ingalls Iron Works Inc.
180 tons, reformatory addition, Monroe, Wash., to Hofius Steel & Equipment Co.
150 tons, high school, Westerley, R. I., to Providence Steel & Iron Co.
150 tons, state highway bridge, Centre county, Pennsylvania, to Bethlehem Steel Co.
150 tons, two boiler supports, steam power plant, Tacoma, Wash., to Puget Sound Machinery Depot.
150 tons, highway bridge, New Jersey, to American Bridge Co.

Awards Compared

	Tons
Awards this week	41,060
Awards last week	12,825
Awards two weeks ago	42,885
Awards this week in 1929	71,432
Average weekly awards, 1930	31,198
Average weekly awards, 1929	38,603
Average weekly awards, April	26,237
Total awards to date, 1929	777,698
Total awards to date, 1930	571,555

150 tons, office building, Pearl and Moore streets, New York, to Dreier Iron Works.
150 tons, plant addition, Capstan Glass Co., Connellsville, Pa., to the Austin Co.
150 tons, iceless refrigerator plant, Grigsby-Grunow Co., Chicago, to the Austin Co.
150 tons, bridge, Lawrence county, Pa., to Guibert Steel Co.
140 tons, tower, Rockland Light & Power Co., Middletown, N. Y., to New England Structural Co.
130 tons, Telegraph road bridge, River Rouge, Detroit, to Massillon Structural Steel Co.
125 tons, apartment, Pintman avenue, New York, to Sladon Iron Works.
120 tons, state highway bridge, Adams county, Pennsylvania, to Bethlehem Steel Co.
100 tons, hangar No. 3, Los Angeles, to McClintic-Marshall Co.
100 tons, substation E, Pacific Gas & Electric Co., San Francisco, to Pacific Coast Engineering Co.
100 tons, bridge, New York Central railroad, Relius, N. Y., to Phoenix Bridge Co.
100 tons, plant, Union Starch & Refining Co., Granite City, Ill., to Chester Iron & Foundry Co.
100 tons or more, hotel, Boise, Idaho, to American Bridge Co.
100 tons, bridge work, Illinois highway commission, to Vincennes Bridge Co.
100 tons, miscellaneous structural work, Congress street substations, Commonwealth Edison Co., Chicago, to Vierling Steel Works.
100 tons, oil storage warehouse, Pennzoil Co., Portland, Oreg., to the Austin Co.
100 tons, warehouse, Texas Power & Light Co., Trinidad, Tex., to the Austin Co., through Texas Construction Co.
100 tons, camera maintenance and repair building, Technicolor Motion Picture Corp., Hollywood, Calif., to the Austin Co.
100 tons, apartment, Post street, Queens, N. Y., to J. Klein Iron Works Inc.

CONTRACTS PENDING

5000 tons, Lane technical high school, Chicago.
4000 tons, Maritime building, Broad street, New York.
4000 tons, new unit, Bellevue hospital, New York.
3600 tons, bridge work, Chicago & North Western railroad.
2500 tons, highway elevation, grade crossing program, Syracuse, N. Y.
1270 tons, Warner Bros. theater, Youngstown, O.; general contract to Heller Bros., Pittsburgh.
1060 tons, substation, Commonwealth Edison Co., Chicago.
1000 tons, office building, Salt Lake City, Utah.
1000 tons, office building, Wall street, New York.
900 tons, freight house, Baltimore & Ohio railroad, Baltimore.
800 tons, bridges in Arkansas and Oklahoma, St. Louis-San Francisco railroad.
750 tons, power house, Wisconsin Power & Light Co., Sheboygan, Wis.
700 tons, subway, Southern Pacific railroad, Tucson, Ariz.
600 tons, loft building, 149th street and Third avenue, New York.
500 tons, highway bridges at Fort Dodge and other Iowa points.
500 tons, highway bridge in Hardin county, Illinois.
500 tons, administration building, Century of Progress Exposition, Grant Park, Chicago.
500 tons, oriental institute, University of Chicago.
400 tons, city hall, Racine, Wis.; former bids rejected.
400 tons, building, Bal-Decker Packing Co., Piqua, O.; bids in.
375 tons, bridge over Mojave river, Sacramento, Calif.; bids received.
350 tons, addition, Quaker City Iron Works, Philadelphia.
300 tons, 7-story office building, 23 West Forty-seventh street, New York.
300 tons, garage, 125 Perry street, New York.
300 tons, theater, Astoria, Long Island, N. Y.
300 tons, bridge work, Union Pacific railroad.
200 tons, library addition, Metropolitan Museum of Arts, New York.
192 tons, garage, Pawtucket, R. I.
150 tons, building, Lorain Automatic Icer Co., St. Clair avenue, Cleveland; general contract to H. K. Ferguson Co.
140 tons, new stadium stands, University of Pennsylvania; general contract to Turner Construction Co.
125 tons, state highway bridges in Manitowoc county, Wis.; bids close May 7.

Concrete Bars

Two Plants Take 4400 Tons —Road Work Important— Prices Weak on Large Lots

INDUSTRIAL buildings occupy prominence in week's news. Factory and warehouse let in New York take 1200 tons; another now up involves 3200 tons. Chicago contemplates early award for 340 miles of road, about 3500 tons. Boston reports about 800 tons let; other awards include 900 tons for a St. Louis school and 725 tons for a Long Island, N. Y., hospital. Inquiries are fewer.

REINFORCING BAR PRICES, PAGE 143

New York, April 29.—Concrete reinforcing bars are fairly active. Prices are firm on small lots with 2.54c for such shipments generally prevailing. On larger tonnages, however, keen competition brings out lower prices and some shading is reported. A local factory and warehouse, 1200 tons, went to Jones & Laughlin Steel Corp. For floor work and completion of the West Side elevated highway, 1500 tons was divided between the Jones & Laughlin Steel Corp. and Joseph T. Ryerson & Son Inc., and 725 tons for the Credemore hospital, Long Island, will be furnished by Kalman Steel Co. A factory and warehouse at Hudson and Charlton streets will require 3200 tons.

Boston, April 29.—More than 800 tons of concrete bars was contracted for last week and about 200 tons is pending. Considerable small tonnage bolsters up the award total, the largest single item being 300 tons for a manufacturing plant at Laconia, N. H. A telephone exchange building at Pittsfield, Mass., will require 180 tons. Prices are holding, although here and there slight softness is noted on fair size tonnages.

Pittsburgh, April 29.—Incoming concrete bar tonnage continues to show improvement over that of a month ago, although activity still is below the 1929 rate. Local awards involve only small lots but a fair tonnage remains pending. Prices continue 1.85c, Pittsburgh, for stock lengths and 2.10c for cut lengths. The recent improvement in business is giving a steadier tone to prices.

Buffalo, April 29.—More than 1500 tons of welded mesh is required for six or more road projects in this district on which bids were received during the past ten days. Contracts in excess of $1,800,000 are about to be awarded to low bidders.

Cleveland, April 29.—Awards and inquiries in concrete bars are at low ebb. A few 15 to 25-ton jobs have been placed but action still is deferred on the larger inquiries that are up, including the Fulton road bridge in Brookside park, 1600 tons. Bids are about to be asked on steel required for 13 additional piers, Central-Lorain bridge, 1300 tons. Some quotations below 1.80c and 1.85c, Cleveland and Pittsburgh, have again appeared.

Chicago, April 29.—Road work, industrial and utility building offer the most promising outlook for the year in the reinforcing bar market. Illinois highway department will receive bids shortly for 200 miles of state road work, requiring about 2000 tons of bars, in addition to the required 140 miles, recently bid upon. The terminal to be built by Chicago & North Western railroad in Chicago for the Railway Express Agency calls for 500 tons, and a Y. M. C. A. building will take 225 tons. Wabash railroad took bids on a 180-ton local warehouse. A number of projects are pending in the Milwaukee district. Published quotations for billet reinforcing bars are based on 2.00c, Chicago.

Awards Compared

	Tons
Awards this week	4,510
Awards last week	7,526
Awards two weeks ago	9,599
Awards this week in 1929	6,509
Average weekly awards, 1929	4,849
Average weekly awards, 1930	6,650
Average weekly awards, April	7,794
Total awards to date, 1929	114,692
Total awards to date, 1930	119,708

CONTRACTS PLACED

1500 tons, completion of first section, West Side elevated highway, Canal to Twenty-third streets, New York; 750 tons each to Joseph T. Ryerson & Son Inc., and Jones & Laughlin Steel Corp. This was reported in IRON TRADE REVIEW of April 17 as going to unstated mills.
1200 tons, factory and warehouse, Watts street, New York, to Jones & Laughlin Steel Corp.
900 tons, Herbert S. Hadley vocational school, St. Louis, to Lakeside Steel Co.
725 tons, Credemore hospital, Long Island, N. Y., to Kalman Steel Co., through Seglin Construction Co., general contractor.
300 tons, manufacturing plant, Laconia, N. H., to Bancroft & Martin Rolling Mills Corp.
225 tons, viaduct, Youngstown place, Seattle, to Pacific Coast Steel Corp.
200 tons, Y. M. C. A. building, Akron, O., to Pollak Steel Corp.
165 tons, rail steel, road work in New Jersey, to Concrete Steel Co.
150 tons, Illinois state road work, to Concrete Engineering Co.
125 tons, hospital, Belmont, Mass., to Joseph T. Ryerson & Son Inc.
120 tons, Squalicum bridge, Washington, to Pacific Coast Steel Corp.
100 tons, service buildings, Puget Sound Power & Light Co., Bellingham, Wash., to Pacific Coast Steel Corp.

100 tons, Home for the Indigent, Philadelphia, to Concrete Steel Co.
100 tons, building, Grinnell Co. Inc., Philadelphia, to Kalman Steel Co.
100 tons, bridge, New York, New Haven & Hartford railroad, New Haven, Conn., to Concrete Steel Co.

CONTRACTS PENDING

3200 tons, factory and warehouse, Hudson and Charlton streets, New York.
180 tons, telephone exchange building, Pittsfield, O.
130 tons, bridge over Mojave river, Sacramento, Calif.; bids received.
100 tons, paving Ocean Shore highway, San Francisco; bids May 20.
100 tons, packing plant, Ottumwa, Ill.

Rails, Cars

Impetus Given Car Market By 2256-Car Inquiry—More Than 750 Bought—Rail Orders Light

ILLINOIS CENTRAL'S inquiry for 2256 cars tops lists now current, aggregating more than 3100 cars. Erie has 50 gondolas and 20 coaches up. Miscellaneous car orders, totaling more than 750, include one from St. Louis-San Francisco for 300 gondolas. Rail and accessory orders are meager but some releases are being received against old orders. Twenty-one engines were ordered.

RAILROAD TRACK PRICES, PAGE 144

Chicago, April 29.—Several small rail orders, including some from frog and switch makers, totaled about 1000 tons last week. Railroad orders for miscellaneous finished steel products for car repairs, maintenance and car building in the carriers' own shops, are being maintained at a normal level. No cancellations or hold-up orders for railroad material are reported. Track fastenings sales in the week aggregated about 1000 tons. Car shops in this district operate virtually at capacity and are in a position to continue at this rate until at least about July 15. Illinois Central car inquiry for 2256 items is now out and an early award is expected.

New York, April 29.—Car orders are more numerous, although aggregate awards still continue light. Fresh inquiry shows little improvement. Chicago & North Western is in the market for 15 locomotives.

Pittsburgh, April 29.—Activity in track material makes a favorable showing, with incoming business during April slightly ahead of both March and the corresponding period a year ago. Releases have been received against several orders, held up since earlier in the year and producers anticipate favorable business during the remainder of the first half. Large inquiries are not appearing either in track material or freight cars. Prices on track material are steady and unchanged.

Buffalo, April 29.—Two steamers have cleared from the Bethlehem Steel Co. plant here with cargoes of steel rails for Detroit.

CAR ORDERS PLACED

Canadian National, five baggage cars, to National Steel Car Corp.
Canadian Pacific, 50 80-ton ore cars, to Eastern Car Co.
Central Railroad of New Jersey, 25 passenger and five combination baggage and passenger coaches, to Pressed Steel Car Co.
Detroit Street Railway commission, Detroit, 130 street cars, to St. Louis Car Co., on its bid of $1,744,600.
Elkhorn Pinney Coal Mining Co., 100 mine cars, to Hockensmith Wheel & Mine Car Co.
Erie, five express cars, to American Car & Foundry Co., and 25 caboose cars, to Magor Car Corp.
L. C. L. Corp., 100 gondolas, to Standard Steel Car Co.
New York Central, one gasoline-electric rail motor car, to be equipped with Sperry rail fissure detector equipment, to J. G. Brill Co.
Oliver Iron Mining Co., 10 air dump cars, to Koppel Industrial Car & Equipment Co.
Pacific Fruit Express, 500 underframes for refrigerator cars to be built in own shops, to Western Steel & Pipe Co.
St. Louis-San Francisco, 300 gondolas, to own shops at Memphis, Tenn.; in addition this railroad is making repairs to 212 gondolas.
Union Pacific, 300 underframes, to Bettendorf Co.; these are for flat cars being built in company shops.

LOCOMOTIVE ORDERS PLACED

Aliquippa & Southern, two switch engines, to American Locomotive Co.
Chicago, St. Paul, Minneapolis & Omaha, three locomotives, to American Locomotive Co.
Erie, 10 locomotives and 5 extra tenders, to Baldwin Locomotive Works.
General American Tank Car Corp., two switch engines, to American Locomotive Co.
Indianapolis Union, four switch engines, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chicago & North Western, 10 70-ton flat cars.
Erie, 50 70-ton low-side gondolas and 20 suburban coaches.
Illinois Central, 2256 freight cars, including 800 40-ton automobile-furniture, 200 50-ton automobile-furniture, 500 70-ton hoppers, 500 50-ton mill type gondolas, and 200 50-ton flats, 15 combination mail, baggage and express, 15 passenger, 20 electric suburban, 2 rail motor and 4 diners. This road will later ask bids on 65 cabooses.
New York Central, 20 passenger coaches; inquiry reported out.
Western Electric Co., 5 to 15 flat cars.

LOCOMOTIVE ORDERS PENDING

Chicago North Western, 15 locomotives.

RAIL ORDERS PENDING

Norfolk & Western, 500 tons; bids opened May 14.

Refractories

Smaller Demand and Shipments Give Quieter Quarter

REFRACTORIES PRICES, PAGE 144

Pittsburgh, April 29.—Sales of refractory material currently are slower than during most of first quarter when a substantial volume of new construction and repair work, much of the former carried over from last year, brought business to a higher level than a year ago. The refractory market now is in a lull so far as construction is concerned, while relining is less active than earlier in the year. Additional business is in prospect for open-hearth furnaces and soaking pits for various plants of the Bethlehem Steel Co. and for the new seamless plant of the National Tube Co. at McKeesport. The outlook points to a decline during the present quarter as compared with the preceding three months and the corresponding 1929 period. Prices remain steady at $43 for first quality fire clay and silica brick, with magnesite brick $65 and chrome brick $45.

Gulf States Earns Less

The Gulf States Steel Co., Birmingham, Ala., reports net income for the first quarter of 1930 of $94,902, after charges, including taxes, depreciation and interest. After providing for 7 per cent preferred stock, this is equal to 30 cents a share on 197,500 shares of common stock outstanding, and compares with $223,440 or 95 cents a share on the same share basis in the preceding quarter and $354,225 or $1.62 a share in the corresponding period of 1929.

Pittsburgh Net Shrinks

Net earnings of the Pittsburgh Steel Co., Pittsburgh, dropped in the first quarter to $175,784, equal to less than 14 per cent of the $1,333,661 reported for the corresponding period of last year. First quarter 1930 earnings were equivalent to $1.67 a share on 7 per cent preferred stocks, compared with $4.54 a share on 253,500 shares of common in the first quarter of 1929.

New Pipe Mill Delayed

Youngstown, O., April 29.—Delay in the delivery of heavy machinery for the new electric pipe-welding mills of Republic Steel Corp. is holding back the new plant's initial rolling. It is said now that the unit which is otherwise ready will start operations about May 20. The first unit of the plant installed about a year ago as an experimental machine is in regular operation, producing from 3 to 8-inch pipe. Republic officials report that about 20,000 tons of the product of this unit has been shipped without complaint.

Canada purchased 17,200 tractors in the United States last year, and Russia 12,400.

Strip

Some Improvement Appears in Hot-Rolled, With Cold-Rolled Prices Holding Steady

STEEL strip buying has shown some improvement in hot-rolled while cold strip is holding well to its better level. Chicago mills find difficulty in supplying some sizes of the former. Prices are steady, but most business goes at the minimum of the spread. Production has increased somewhat on hot-rolled, while cold-rolled is at about the same rate as the previous week.

STRIP PRICES, PAGE 144

Pittsburgh, April 29.—Incoming business in strip steel shows moderate improvement and April specifications and shipments will show a fair increase over the preceding month. Improvement in buying is confined to hot-rolled strip, with cold-rolled dull. Production of the former is higher at 65 to 70 per cent, although cold strip output remains around 30 per cent. Prices are steady with hot strip at a medium of 1.70c and 1.80c for the two sizes and cold-rolled strip 2.55c. Small lots take $2 a ton higher.

Worcester, Mass., April 29.—Cold-rolled strip steel production is equal to March, which was the best month in several. Prices are firm at 2.70c to 2.80c. Prices shop work is picking up.

New York, April 29.—Strip demand remains sluggish with hot-rolled strip unchanged at 1.70c to 1.80c, Pittsburgh, for wide and 1.80c to 1.90c, Pittsburgh, for narrow. Cold strip is holding at 2.55c to 2.60c, Pittsburgh, with 2.65c now applying to a negligible tonnage.

Cleveland, April 29.—Spurts of improvement in the strip market are followed by setbacks in demand. The general opinion is that a slight trend toward better conditions is evident. Automotive demand mainly supports the market. Hot strip is 1.70c to 1.80c, base, Pittsburgh, for wide, and 1.80c to 1.90c for narrow, most tonnage going at the inside figure. Small orders still take the maximum. Cold-rolled tonnage is badly needed by all the mills. They willingly go to 2.55c, Cleveland, to get it.

Chicago, April 29.—Hot-rolled strip producers report difficulty in meeting demands for shipment in some wider sizes. Operations are slightly improved at close to 70 per cent. Hot-rolled prices are unchanged at 1.90c to 2.00c for narrow strips, and 1.80c to 1.90c for wide material. Cold-rolled strip tonnage is making no gains. Nominal backlogs of about a week are reported. No recent gains in automotive releases have resulted in this district. Cold-rolled strip prices are on the basis of 2.55c to 2.65c, Pittsburgh-Cleveland.

Barrels' Drop Checked

Cleveland, April 29.—With the production rate of steel barrels at 47.5 per cent of capacity, total shipment of 518,758 units was made during March, by the Steel Barrel institute, Cleveland, from reporting members. These figures compare with a 38.6 production percentage and shipment of 418,374 barrels in February. March's figure halts the decline of the previous three months.

Arnold's History of Rhode Island says: "It is said that the first cold-cut nail in the world was made by Jeremiah Wilkinson, of Cumberland, R. I., about 1777."

Cold Finished Steel

April Rate Same as March—Orders, Largely Automotive, Are Small

COLD FINISHED PRICES, PAGE 144

Cleveland, April 29.—The first month of the second quarter ends with but little advance made toward improved cold-finished bar demand. Orders are still small for the most part. While they are largely automotive in character, other consuming lines are represented in a small way. The 2.10c, Cleveland, price still applies.

Pittsburgh, April 29.—Specifications for cold-finished steel bars and shafting show a slight improvement, although total incoming business during April was little changed compared with March. Shipments are heavier, however, and improved activity by the automotive industry is expected in May. The market generally continues 2.10c, Pittsburgh.

Wire

Production Being Held While Demand Is Slightly Less—April Shipments Under March

SEASONAL influences, always a strong factor in wire and nail sales, are operating to slacken demand and a lull is being felt. An increase in May is a normal expectation. Mills are maintaining the former rate of production in spite of less buying. Jobbers are limiting nail stocks because of uncertain price conditions. Prices are fairly steady on the small volume.

WIRE PRICES. PAGE 144

Chicago, April 29.—Western wire mills are able to maintain operations at about 55 to 60 per cent, despite a slight decline in tonnage compared with recent weeks. Electrical wire sales have been holding up to the average of last year, but the drop in copper prices has not resulted in heavier buying. Manufacturers' wire is barely holding to the recent volume. Dealer sales of common wire products give promise of more activity in May, or in the period following farm seeding operations. Wire nails prices to the merchant trade are reported at $2.25 to $2.35, Chicago or western mills.

Worcester, Mass., April 29.—Wire production remains stationary. Prices are firm at 2.55c to 2.65c, base, Worcester, for plain bright wire to dealers. There is some opinion that prices are too firm and that some elasticity might stimulate the market.

Philadelphia, April 29.—Although $2.15, base, Pittsburgh, has been done on wire nails in some other districts this figure apparently has not been done here and the lowest here has been $2.20. Nail demand is slow and most buyers have first quarter stock. Demand for plain wire continues fairly good and the price is firm at 2.40c, base, Pittsburgh.

Pittsburgh, April 29.—Business in wire products is slow to expand. Wire orders showed their usual decline recently following fairly heavy coverage early in the month. April shipments, however, will fall moderately below the March tonnage. In view of the recent uncertainty in nail prices jobbers have been restricting their stocks and orders have been slow. Nailmakers generally are quoting $2.20 to jobbers for standard wire nails although reports of lower prices still persist in some districts. Bright plain wire remains fairly steady at 2.40c, with wire rods $38.

New York, April 29.—The general market on wire nails to jobbers continues $2.20, Pittsburgh, although subject to shading in occasional instances, involving highly preferred customers. The market to the merchant trade is relatively steady at $2.30. While demand is showing little improvement, it appears to be holding its own. Bright plain wire is unchanged at 2.40c, Pittsburgh.

Nonferrous Metals

Rumors of Further Copper Price Cuts Cause Users to Show Caution in Seeking Metal—Tin Quotations Drop Lower

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
April 23	14.00	14.10	13.55	35.55	36.00	5.50	5.40	4.75	23.90	7.55	35.00
April 24	14.00	14.10	13.55	35.40	35.85	5.50	5.40	4.75	23.90	7.50	35.00
April 25	14.00	14.10	13.55	35.10	35.50	5.50	5.40	4.75	23.90	7.50	35.00
April 28	14.00	14.10	13.55	34.65	35.12½	5.50	5.40	4.75	23.90	7.50	35.00
April 29	14.00	14.10	13.55	34.37½	34.75	5.50	5.40	4.75	23.90	7.60	35.00

NEW YORK, April 29.—Rumors of further price cuts in copper have been affecting not only demand for the red metal but buying of other nonferrous metals as well. Trading in zinc has been almost at a standstill although prices have held unchanged during the last week. Lead business has been lagging with only a few carlots booked from time to time. Tin demand has been lacking despite extremely low level of prices. Aluminum and antimony markets have been generally quiet.

Prices have been fairly steady this week except in the case of tin. Marked weakness in London quotations has forced tin prices here to new low levels. Easiness in the lead market abroad has threatened parity in this country while price shading has been reported in both copper and zinc. Despite these bearish influences, producers' quotations have held unchanged in copper, lead, and zinc. Antimony became firmer on Tuesday following easiness early last week.

Actual consumption of copper and related metals probably has shown little change in the last few weeks. Automobile production now is higher than at any time since last autumn. Electrical industry reports active business and the building trade improves.

Copper—Trading has been light in the past week. Export sales have dropped off following a high rate immediately after the 4-cent cut in copper on April 15. Talk of limited tonnages available in the outside market at ½-cent and more under producers' prices has resulted in general hesitancy among consumers to place orders although the latter's stocks in some cases are reported dangerously low. Bargain metal in the outside market has been offered for future shipments, only, and users now are interested in immediate deliveries. General tone of the copper market has contributed to further easiness in scrap quotations. Some copper business has been done every day at the 14-cent level, mostly for immediate shipment to home and foreign sources.

Tin—New low level of prices has failed to stimulate much buying. Weakness has been caused principally by slumping values abroad. Stocks of tin in this country total 2469 tons, an increase of 940 tons since the first of April. London and Liverpool stocks are at record height of 17,872 tons. Straits shipments for the month are expected to total nearly 10,000 tons. The market continues decidedly overbalanced on the side of supplies.

Zinc—Steadiness in zinc ore prices has aided producers in maintaining unchanged prices for metal. Weakness in London has affected the market here and rumors of price shading have been heard, however. Business has been extremely light.

Lead—Buying of lead has been almost entirely for immediate requirements. Further weakness in London on Tuesday caused the trade here to watch the developments abroad.

Aluminum—Prices are unchanged and the market generally quiet.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	20.50
Copper, hot rolled	23.75
Lead, full sheets (cut ½c more)	9.25
Zinc sheet (100-pound base)	10.00
Zinc strip (100-pound base)	9.50
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	25.50
Copper	26.00
RODS	
Yellow brass (high, full turnings)	18.75
Naval brass	21.50
WIRE	
Yellow brass (high)	21.00

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00 to 9.25
Chicago	8.00 to 8.25
Cleveland	8.50 to 9.00
St. Louis	8.25 to 8.50
HEAVY YELLOW BRASS	
Cleveland	5.50 to 6.00
HEAVY COPPER AND WIRE	
New York	11.25 to 11.50
Boston	9.50 to 9.75
Chicago	10.50 to 11.00
Cleveland	9.50 to 10.00
St. Louis	8.75 to 9.00
RED BRASS BORINGS	
New York	8.00 to 8.25
YELLOW BRASS TUBING	
Cleveland	5.50 to 6.00
LIGHT COPPER	
New York	10.50 to 10.75
Chicago	8.50 to 9.00
Cleveland	8.50 to 9.00
St. Louis	8.75 to 9.00
LIGHT BRASS	
Boston	4.75 to 5.00
Chicago	5.00 to 5.25
Cleveland	4.00 to 4.50
St. Louis	4.25 to 5.00
ZINC	
New York	2.50 to 2.75
Cleveland	2.00 to 2.50
St. Louis	2.50
ALUMINUM	
Clippings, soft, Cleveland	10.00 to 11.00
Clippings, hard, Cleveland	9.00 to 9.50
Borings, Cleveland	6.50 to 7.00
Cast, Cleveland	8.00 to 9.00
Cast, Boston	9.00 to 9.50
Cast, St. Louis	8.00

Secondary Metals

Remelt aluminum No. 12	16.00 to 16.50
Brass ingot, 85-5-5-5	12.75 to 13.00

Coke By-Products

Sulphate More Active as Season Opens —Distillate Reselling Is Heavier

New York, April 29.—Sulphate of ammonia is more active following a late opening of the season. Fertilizer interests are taking more than 90 per cent of the current shipments. Volume at the present rate promises to reach that of last year. Prices are firmer. Consuming season for naphthalene is nearing its peak. Volume is heavy, mostly against contracts. The dyestuff industry appears to be well covered making few inquiries for material. Most business is on contracts. Resales are slightly heavier. Some spot business is noted. Phenol is fairly active, the lacquer and bakelite trades taking more than half present shipments. Little, if any, phenol is moving in this market under 16c. Inquiry from automobile sources is slightly heavier.

Coke By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot
Pure benzol	$0.22
90 per cent benzol	0.22
Toluol	0.35
Solvent naphtha	0.28
Commercial xylol	0.28
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.04½ to 0.05½
Naphthalene balls	0.05½ to 0.06½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.10 to $2.20

Quicksilver Stronger

New York, April 29.—Quicksilver is stronger, with spot asking price $117.50 a flask.

Warehouse

Gains of April Over March Slight, If Any—Automotive Takers Quiet Everywhere—Heavy Products Still Move Slowly

APRIL demand has not quickened to the proportions predicted a month ago. Sales are generally down, in many instances below March. Ordinarily-heavy takers have not opened up. Prices, while unchanged except for western quotations at Tulsa, Okla., show signs of softening in some centers. Whatever immediate increases in demand will come are foreseen in building activity.

New York—April will show little if any gain over March. However, with building somewhat more active, prospects are for improvement in some lines. Prices generally are unchanged.

Pittsburgh—With little change noted from March's rate, sales continue at a fairly even pace, and activity is distinctly below a year ago. Sheets are moving better than earlier in the year. Prices are the same though shading is common on some products.

Philadelphia — Warehousemen say that sales show continued lagging. Demand is below March and considerably less than April a year ago. Prices are unchanged.

Buffalo—Business continues on a fairly satisfactory scale with many principal consumers using warehouses to fill out steelworks deliveries, which are suffering from slower demand.

Cincinnati—Jobbers report seasonal upturn in demand for construction materials is evident, but substantially below last year. Prices are unchanged.

Cleveland—Following the recent brief return to activity, the iron and steel jobber trade generally has subsided to comparative quiet. The movement of practically all grades of standard warehouse material is exceedingly light, with the exception of sheet and strip. Prices remain unchanged but show signs of softening.

Detroit—Even though April orders are more numerous than March's the automotive field does not warrant generally a definite prediction for immediate betterment. Some industries are becoming more optimistic.

Chicago—April warehouse orders are slightly under March, in spite of extended mill deliveries.

St. Louis—Business is quiet though building materials, especially for highways and public improvements, are showing activity. Galvanized and blue annealed sheets have shown recent increases, particularly from the general manufacturing trade. Automotive industry is only beginning to reflect seasonal increase. Easier trends are noted in sheet and bar prices, but no changes in quotations have been recorded.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

Hot Mill Products Subject to New Quantity Differentials Adopted March 3, 400 to 3999 Pounds Being Base

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Houston	3.00c
Los Angeles	3.30c
New York††	3.25c
Philadelphia	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.65c to 4.00c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
New York††	3.25c
Philadelphia	2.80c
St. Louis	3.15c
Tulsa	3.65c to 4.00c

REINFORCING BARS

Baltimore	3.31c
Boston	2.665c
Buffalo	2.95c
Chattanooga	3.25c
Cincinnati	3.30c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Houston	3.00c
Los Angeles cl.	2.40c
Los Angeles lcl.	2.70c
New York	2.65c to 3.10c
Philadelphia	2.55c to 3.00c
Pittsburgh	2.75c
San Francisco cl.	2.30c
San Francisco lcl.	2.60c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.65c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Houston	3.25c
Los Angeles	3.30c
New York	3.30c
Philadelphia	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.65c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland ¼ in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York	3.30c
Philadelphia	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.65c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.75c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Houston	3.90c
Los Angeles	3.85c
New York	3.50c to 3.60c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.25c to 3.35c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.54½c
Tulsa	4.00c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c
Detroit	3.95c
Los Angeles	4.75c
New York	3.65c to 3.90c
Philadelphia*†	3.80c
Pittsburgh**	3.65c to 3.75c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.79c
Tulsa	4.45c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.40c to 4.60c
Chicago (local delivery)	4.60c
Chicago (outside shipment)	4.35c to 4.60c
Cincinnati	4.90c
Cleveland***	4.50c
Detroit	4.60c
Houston	5.40c
Los Angeles	5.20c
Pittsburgh**	4.30c
Philadelphia*†	4.45c
Pittsburgh**	4.40c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	4.85c
St. Paul	4.58c
Tulsa	5.15c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chattanooga	3.45c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Houston	3.65c
Los Angeles	4.30c
New York	3.75c
Philadelphia	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York	4.25c
Philadelphia	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore (c)	3.50c(a)	4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chattanooga*	3.85c	4.35c(d)
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	4.00c
Philadelphia*	3.40c	3.90c
Pittsburgh	3.60c	4.10c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	4.75c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only; (d) Squares only. *Plus quantity differentials.

COLD ROLLED STRIP

Boston, 0.100-inch 500 pounds lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.05c
Philadelphia (c)	5.05c

(b) Net base, straightening, cutting, boxing 1 ton or more. (c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	12.50c
Iron bars, round	6.25c
Iron bars, flats and squares	6.50c

††Domestic bars. **Less than 25 sheets. *†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Small Lots Characterize Buying—Total Is Fairly Large—Plates Most Active

CONSIDERABLE iron and steel tonnage is being booked in Pacific coast states, but almost all is in small lots, unimportant in themselves but giving sufficient total to please dealers. Among larger tonnages is an award for underframes for the Pacific Fruit Express Co. and one for gas holders for the Southern Counties Gas Co., Los Angeles. Imports show a gain.

Seattle, April 23.—A large number of small jobs recently have been awarded in lots of less than 100 tons. This applies to reinforcing materials, plate and tank work and structurals. Several projects involving large tonnages are pending. Plants handling steel items are generally at capacity in this territory at present.

Bars, Plates and Shapes

Reinforcing awards in lots of 100 tons exceeded 1500 tons this week included the following contracts placed with the Pacific Coast Steel Corp: 1100 tons for a dock extension at Pearl Harbor, Hawaii; 225 tons for the Youngstown place viaduct, Seattle; 120 tons for Squalicum bridge near Bellingham. 100 tons for the Puget Sound Power & Light building, Bellingham, and a small order for the state reformatory at Monroe. Northwest Steel Rolling Mills has a large aggregate of car lot orders, including one for a state building at Steilacoom. Bids for approaches to the Aurora bridge will be received in June. This job involves 900 tons. Tacoma is considering bids for the substructure of a steam power plant calling for 125 tons. Lewis county has awarded two bridge contracts, steel tonnages unstated.

One of the largest boiler contracts in recent months has been taken by the Puget Sound Machinery Depot. This equipment is for Tacoma's steam power plant. Tonnages include 200 tons of plates, 150 tons of structurals and 150 tons of tubes. The same firm has several smaller boiler jobs requiring 150 tons of plates. Seattle Boiler Works is building 17 storage tanks for the Union Oil Co., requiring 100 tons of plates. This company is low bidder on a water tank project at Everett, Wash., calling for 100 tons of plates. J. W. Hoover has the general contract for 7800 feet of 30-inch pipe for Everett, 375 tons of plates. Puget Sound Sheet Metal Works is constructing several tanks for the Gilmore Oil Co.'s new plant on West Forty-fifth street Seattle.

Structural awards of the week include 180 tons for an addition to the state reformatory at Monroe to Hofius Steel & Equipment Co. An unstated tonnage for a hotel at Boise, Idaho, was taken by the American Bridge Co. Star Iron Works took a small tonnage for a theater at Centralia, Wash.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Commitments Are Light

San Francisco, April 26.—(*By Air Mail*)—Construction and building activity has shown little improvement during the past few weeks and as a result movement of iron and steel products is relatively light Prices appear firm though some weakness in plate prices is noted.

Imports of iron and steel products on the Pacific Coast during January, figures for which have just been received, show increases over December, 1929, for coke, bars, structural shapes and tubular products and a decrease in cast iron pipe and pig iron. The aggregates for the major items were as follows;

	Tons Jan. 1930	Tons Dec. 1929	Tons Jan. 1929
Pig iron	365	1,804	3,939
Coke	12,073	3,215	3,739
Bars	1,035	926	465
Shapes	3,890	2,063	378
Cast iron pipe	724	1,012	1,783
Tubular products	2,495	1,530	944

Demand for foundry pig iron and coke remains light. Most sales and inquiries are for small tonnages. Prices are unchanged.

Bars, Plates and Shapes

Movement of merchant steel bars has been confined to small lots. Prices are firm at 2.35c, c.i.f. Awards of concrete bars totaled less than 200 tons and were in lots of less than 100 tons. Bids have been opened on 130 tons for a bridge over the Mojave river in California. Prices in the San Francisco district on out-of-stock material remain at 2.30c, base, on carload quantities.

Western Pipe & Steel Co. took 500 tons additional for gas holders for the Southern Counties Gas Co., Los Angeles, and also booked 1450 tons for 500 underframes for refrigerator cars for the Pacific Fruit Express Co., San Francisco. The Pacific Coast Engineering Co. was low bidder on 150 tons for shore pipe for the port commission, Oakland. Plate prices larger lots bringing a somewhat lower quotation.

Consolidated Steel Corporation secured 450 tons for a gymnasium for the University of Southern California, Los Angeles.

Pacific Fruit Express Co. awarded 250 tons for 1004 car ladders to the Pacific Coast Engineering Co. and 1000 tons for 500 car bodies to the Palm Bridge & Iron Works, Sacramento. Pending business is not heavy.

Other Finished Material

Los Angeles county water works district No. 10 placed 161 tons with the American Cast Iron Pipe Co., San Francisco, will open bids April 28 for 309 tons. Standard pipe is moving in small lots only. No large pipe line inquiries are in the market.

Gear Makers Convening in Cincinnati

Program arrangements have been completed for the fourteenth annual meeting of the American Gear Manufacturer's association, to be held at Hotel Gibson, Cincinnati, May 1-3. Four general sessions have been planned, as well as a special luncheon, informal banquet, meeting of the industrial group and reports of association committees. Four new members will be elected to the executive committee for a period of three years. Election of new officers to the association will probably be deferred until June, according to Secretary T. W. Owen.

Four technical papers will be presented as follows: "Gear Nomenclature Symbols," by A. H. Candee, Gleason Works, Rochester, N. Y.; "Load and Speed Conditions of Worm Gear Drives—Second Part," by Emil Dukes, Gears & Forgings Inc., Cleveland; "Photoelectric Cells," by L. R. Koller, General Electric Co., Schenectady, N. Y.; and "The Outlook for New Developments in the Machine Tool Industry," by E. F. DuBrul, general manager, National Machine Tool Builder's association, Cincinnati.

New Seamless Tube Mill Nears Completion

National Tube Co. expects to operate the first of its new seamless tube mills at McKeesport, Pa., May 15. This mill is designed to make tubes 3½ to 8⅝ inches outside diameter and in lengths up to 40 feet by an electrically welded process. The second mill is expected to be scheduled about July 15 and the entire plant by Oct. 1.

Enlargement of open-hearth and bessemer steelmaking capacity and rolling facilities is under way. A new mixer building is being erected, a slab mill is being converted into a blooming mill and a new 32-inch reversing bar mill for rolling round billets is being installed. Large diameter seamless tubes will be produced with the aid of a new rotary rolling process. The two new seamless mills replace six lapweld units.

Sheet and Tin Plate Mill Wages Reduced

Wages of workers in independent sheet and tin plate mills will be reduced in May and June, it was determined at the bimonthly meeting of representatives of the mills and the Amalgamated Association of Iron, Steel and Tin Workers, in Youngstown, O., April 29. The average of sales prices of Nos. 26, 27 and 28 gage black sheets in March and April dropped to 2.90c, from 3.05c in the preceding two months. This will reduce wages from the level of 27 per cent above base, to 22.5 per cent above base. It is the first reduction since November-December, 1927, and the lowest level since July-August, 1922. Following is a comparison of price averages:

March-April	2.90c	—4.5 per cent
Jan.-Feb., 1930	3.05c	unchanged
Nov.-Dec.	3.05c	unchanged
Sept.-Oct.	3.05c	unchanged
July-Aug.	3.05c	unchanged
May-June	3.65c	+1.5 per cent
March-April	3.00c	unchanged
Jan.-Feb., 1929	3.00c	unchanged
Nov.-Dec.	3.00c	unchanged
Sept.-Oct.	3.00c	unchanged
July-Aug.	3.00c	unchanged
May-June	3.00c	unchanged
March-April	3.00c	unchanged
Jan.-Feb., 1928	3.00c	unchanged

Gain in Plate Orders

Washington, April 29.—March fabricated steel plate orders increased over February, with 35,985 tons booked. Based on reports to the department of commerce from 48 firms, orders were at 45.7 per cent of capacity. A comparison of first quarter totals shows 114,393 tons placed against 149,117 tons for the first three months, 1929. Figures follow giving orders for principal classes:

1929	Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks & miscellaneous
March	57,628	21,951	5,656	631	15,274
April	42,063	9,984	2,483	2,462	23,169
May	47,715	10,087	5,300	1,245	26,118
June	45,918	6,890	5,444	1,003	26,200
July	48,968	14,963	5,352	2,650	20,988
August	39,702	11,150	3,317	115	19,341
September	41,653	15,189	3,353	200	16,123
October	32,099	8,786	985	853	15,766
November	42,295	9,033	1,857	1,019	14,601
December	23,535	3,669	549	1,529	13,166
Total (year)	513,065	138,850	42,670	12,127	220,781
1930					
January	50,076	7,432	2,868	1,042	15,168
February	*28,332	7,865	3,643	279	11,656
March	35,985	5,575	1,819	2,749	16,627

*Revised.

Pig Iron

(*Concluded from Page* 145)

Southern iron continues $13, base, Birmingham, with demand dull. Current inquiries are for carload lots.

St. Louis, April 29.—The melt of pig iron in this district has receded slightly since the first week in April, and this is reflected in a reduced daily average rate of shipments. Total deliveries for the month will fall slightly under the March aggregate. Sales continue in fair volume, aggregating about 4800 tons in the past week. Stove manufacturers are preparing to increase operations early in May. Pig iron prices are steady.

Birmingham, Ala., April 29.—Pig iron sales and shipments exceed production, though eastern business has tapered off. The tentative schedule of blast furnace operations for May is the same as that for April. Some melters in this territory are coming into the market to cover requirements four to eight weeks ahead. Prices are unchanged.

Toronto, Ont., April 29.—Improved demand for merchant pig iron featured the Toronto and Montreal markets during the week. Buying was entirely for spot delivery. Several consumers have issued specifications for substantial tonnages for the next few weeks. Prices are firm.

Depositions Taken in Sheet & Tube Sale; Federal Investigation Is Asked

CLEVELAND, April 29.—Depositions were taken at Cleveland Monday and at Youngstown, O., Tuesday by counsel for Cyrus S. Eaton, who is leading the opposition to the sale of the Youngstown Sheet & Tube Co. to the Bethlehem Steel Co., as the initial step for pressing legal action aimed at preventing the sale. These depositions will be introduced as evidence in suits which would prevent the voting of a number of thousand shares by the pro-merger group.

Directors of the Sheet & Tube company, it is understood, were to meet in Youngstown Wednesday to determine what cash price would be paid those stockholders preferring cash for their Sheet & Tube holdings to an exchange of stock, which is to be on the basis of 1 1/3 shares of Bethlehem for each common share of Sheet & Tube.

At Washington the federal trade commission admitted the receipt of an informal protest to the sale of Sheet & Tube to Bethlehem, filed by E. S. Wertz, former district attorney and a stockholder in Sheet & Tube. An office investigation of the matter is to be made by H. L. Anderson, chief examiner of the commission, to determine whether there is any merit in the complaint and to precede a field investigation.

Mr. Wertz also placed his complaint before United States Attorney W. J. Mahon, asking that the attorney general authorize an investigation of the proposed merger by the Cleveland office of the department. It is contended that the Clayton act has been violated nine times.

A consolidation of Continental Shares Inc., which recently consummated the Republic Steel Corp. merger, and the International Share Corp. is contemplated by Mr. Eaton and associates. Steel holdings of Continental Shares Inc. as of March 31 include 25,197 shares of Bourne-Fuller Co., 46,700 shares of Central Alloy Steel Corp., 245,142 shares of Cliffs Corp., 250,000 shares of Donner Steel Co., 1000 shares of Inland Steel Co., 3243 shares of Wheeling Steel Corp., and 8000 shares of Youngstown Sheet & Tube Co.

International Share Corp. as of March 31 owned 18,100 shares of Cliffs Corp., 2500 shares of Republic Iron & Steel Co., and 5000 shares of Youngstown Sheet & Tube Co. The Cliffs Corp., in which these two investment trusts own 265,339 shares, including certificates of deposit, owns a 50 per cent interest in the Cleveland-Cliffs Iron Co., which recently purchased the Corrigan, McKinney Steel Co., Cleveland.

Sheffield May Merge

New York, April 29.—Negotiations to join the Sheffield Steel Corp., Kansas City, Mo., with "an outstanding strong group" are under way, according to W. L. Allen, president, following a meeting of directors here April 23.

The Sheffield corporation, in addition to operating open-hearth furnaces, has capacity for producing merchant and concrete bars, black and blue annealed sheets, plates, machine bolts, rivets, nuts and other hot products.

Minimize Inspection

Cleveland, April 29.—Officials of the Otis Steel Co. state no significance is to be attached to a recent inspection of the company's plants by officials and engineers of the Bethlehem Steel Co. The Otis plant adjoins the Corrigan, McKinney Steel Co., which recently passed to the control of the Cleveland-Cliffs Iron Co. in which the Eaton group has a one-half interest.

First Quarter Steel Corp. Net Drops 20 Per Cent from Year Ago

UNITED STATES STEEL CORP. showed a consolidated net income of $35,777,807 for the first quarter of 1930, after interest, depreciation and other charges. This sum leaves, after dividends on preferred shares, $3.44 on each of 8,560,876 common shares. The following table will show the comparison of the first quarter of 1930 with the corresponding period of 1929, when net income of $4.14 per share for 8,132,840 shares outstanding and consolidated net income of $39,972,358 was reported:

	First Quarter 1930	Fourth Quarter 1929	First Quarter 1929
Net earnings	$49,615,397	$56,385,334	$40,105,381
Depreciation and depletion	14,813,529	15,816,892	14,716,828
Interest	1,420,697	596,084	3,203,106
Net income	$33,381,171	$39,972,358	$42,185,447
Special income*	2,396,636		
Total net income	35,777,807	39,972,358	42,185,447
Dividends:			
Preferred	6,304,919	6,304,920	6,304,919
Common	14,981,533	14,541,013	12,453,411
Surplus	$14,491,355	$19,126,425	$23,427,117

*Quarterly apportionment of net interest on federal tax refund.

Consolidated net earnings of $49,615,397 were reported for 1930's first quarter against $56,385,334 in the preceding three months. The net income figure represents a total after all charges and taxes, and includes the special income receipt of a quarterly apportionment of net interest on the federal tax refund of $2,396,636. By months for the quarter just past the following totals present a comparison for first quarters over the past three years:

	1930	1929	1928
January	$15,404,359	$18,759,098	$11,899,549
February	16,107,410	19,080,941	13,581,337
March	18,103,628	22,265,342	15,453,146
	$49,615,397	$60,105,381	$40,934,032

Shipments for the first quarter of 1930 equaled 81 per cent of capacity, comparing with 74.5 in the fourth quarter of 1929. However, the first quarter of 1929 figure stood at 94 per cent. The finance committee further reported that prices averaged $1.45 per ton less than a year ago on domestic business. Earnings for the first quarter of 1930 were 20 per cent below those for the same time, 1929, with an output which was 14 per cent less.

The present operating rate at about 80 per cent for the Corporation is expected to be fairly well maintained through the second quarter from present indications. Directors declared the regular quarterly dividend on both common and preferred issues of 1¾ per cent.

Bethlehem's First Quarter Earnings Are High

New York, April 29.—First quarter earnings of the Bethlehem Steel Corp. increased 11.4 per cent over the first three months of 1929 to the highest first quarter total ever reported. Part of this increase is attributed to earnings of Pacific coast companies acquired last fall.

First quarter net was $10,077,486, after all charges, equal to $2.60 a share on 3,200,000 shares outstanding. This compares with $10,046,197 or $2.59 a share in the preceding quarter on the same share basis. Total for the first three months of 1929 was $9,045,590, equal to $4.05 a share on 1,800,000 common shares then outstanding.

Value of orders on hand March 31 was $73,333,010, compared with $86,060,883 at the end of the previous quarter and $62,702,683 March 31, 1929.

E. G. Grace, president, said bookings are not sufficient to justify continuance of the present rate of ingot operations of 84 per cent. He thought that by May 1 operations would be 80 to 81 per cent.

Commenting on prices, Mr. Grace said: "Prices are not increasing; in the main, they are about the same; if anything on the soft side. We do not contemplate any reduction in base prices, however." He said that the average billing price for the first quarter showed a falling off of $1.33 from the preceding quarter.

The first quarter income account and quarterly comparisons follow:

First Quarter Income Account

	1930	1929
Net earnings	$15,846,506	$15,245,471
Interest	2,162,049	2,780,575
Depreciation and depletion	3,606,971	3,419,306
Net income	10,077,486	9,045,590
Preferred Div.	1,750,000	1,750,000
Common Div.	4,800,000	1,800,000
Surplus	3,527,486	5,495,590

Net Income

Quarter	1930	1929	1982
First	$10,077,486	$9,045,590	$3,384,718
Second		11,766,473	4,529,328
Third		11,384,720	4,272,528
Fourth		10,046,197	6,399,348

Inland Net Declines

Chicago, April 29.—First quarter earnings of the Inland Steel Co. declined 9.5 per cent compared with the same period of 1929. Net income for the quarter just ended was $2,721,318, equivalent to $2.26 on 1,200,000 shares of common stock, compared with a net of $3,007,242 or $2.50 per share on common in the corresponding 1929 period. Following shows the income account contrasted:

	1930	1929
Net earnings	$4,098,424	$4,418,464
Depreciation and depletion	724,356	676,722
Interest	330,750	337,500
Federal taxes	322,000	397,000
Net income	$2,721,318	$3,007,242

Hanna Earnings High; Dividends Ordered

The M. A. Hanna Co., Cleveland reports for the first quarter of the 1930 consolidated net corporate income of $381,219. This is only a slight decline compared with the total of $381,739 reported for the first quarter of last year. Net earnings for the period amounted to $536,645, compared with $731,725 in the corresponding quarter of last year.

Interest on funded debt declined from $152,820 in the first quarter of last year to $78,750 this year, while charges for depreciation and depletion dropped from $192,653 to $78,750.

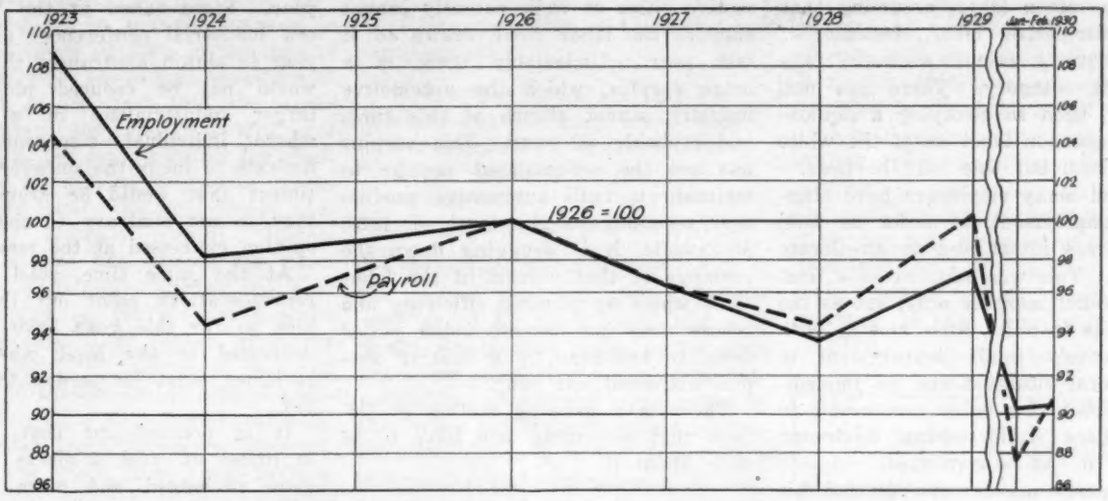
Directors declared quarterly dividends of $1.75 on new $7 cumulative preferred stock and also 1¾ per cent on old first preferred stock of which there were only 4112 shares outstanding March 31. These shares are junior to 137,000 shares of new $7 preferred stock. Dividends are payable June 20 to stock of record June 5.

Newton Steel Earns Less

Earnings of the Newton Steel Co., Youngstown, O., dropped sharply in the first quarter compared with the corresponding three months of 1929, according to the company's quarterly report. For the quarter ended March 31, 1930, net profit was $287,581, after depreciation, federal taxes, etc., equal, after providing for dividends of $2,177,500 in 6 per cent preferred stock, to 96 cents a share on 264,000 shares of no par common stock. This compares with $719,961 of $2.86 a share on 240,000 shares in the first quarter of 1929.

Virginia Iron Shows Loss

The Virginia Iron, Coal & Coke Co., Roanoke, Va., in its report for the first quarter shows net loss of $41,453, after all charges. This compares with net profits of $33,048, or $1.32 a share on 25,000 shares of 5 per cent preferred stock reported, for the first three months of 1929.



General indexes of employment and payroll totals in manufacturing industries are charted, from reports by federal bureau of labor statistics. Yearly averages are shown, with corresponding indexes for January and February, 1930

Reduced Employment Draws More Attention to Wage Rates

EMPLOYMENT in general manufacturing industries, including iron and steel, withstood the first shock of the crash in the stock market early last fall, but it gave way in the last month of the year and it has not yet made substantial recovery from the consequent unsettlement of business. The industries which are most susceptible to seasonal influences have shown the most conspicuous gains.

Wage rates in basic industries have not been changed in recent years, with few exceptions, and this fact is cited as evidence of fundamental stability. But wage rates are not the determining factor, when lack of employment reduces earnings. In some industries the question is being considered whether it would not be more advisable to reduce wage rates as a step toward recovery, than to hold to the policy of keeping wages up while employment remains down. Few large employers of labor will be found advocating a reduction in wage rates, and in the iron and steel industry the consensus of opinion is opposed to such a course. Some companies in general manufacturing, including automotive, have taken the first steps to reduce wage rates, "as an economic necessity." It was to determine how far this sentiment extends that IRON TRADE REVIEW made inquiries in various districts.

The index for employment in general manufacturing in January, February and March this year was lower than for any other months in more than seven years, according to bureau of labor data. Employment in general manufacturing in 1929 was higher than in either 1928 or 1927, but in the last two months of 1929 there was considerable shrinkage. The general index for employment for 1929 was 97.5, whereas for January it was 90.2 and February 90.3. The index considers the average for 1926 as 100. The official figure for March is not yet available but advance reports indicate there was not much change from February.

The index for employment in iron and steel manufacture dropped from a general average of 94.7 for 1929 to 88.7 in January. February witnessed a slight improvement when the index moved up to 90.8 and preliminary figures for March indicate a drop of one-half of 1 per cent for that month.

The bureau of labor's iron and steel "group index" also showed a sharp recession from a general average of 98.9 for 1929 to 91.7 in January, a slight gain in February to 92.9, and little change in March. The group index for February was eight points below the average for 1929, but 1.4 points higher than the average for 1928.

Automotive Industry Grapples with Labor Problems

DETROIT, April 29.—Automobile production in the first quarter of 1930 was 30 per cent below the opening quarter of 1929. Production is now moderately increasing, with expectations that the second quarter will show considerable improvement over the first, and that the third quarter will be good. However, a 1930 total of passenger cars and trucks of 20 per cent below 1929 is generally forecast.

White collar forces have been well liquidated. Last fall, after the crash in the stock market, the clerical and executive forces were first to feel the necessity for reducing overhead. During the lush days early in the year the surplus of white collar forces passed unheeded, but the blow that came after the Wall Street disaster was immediate and drastic.

Last year's record production also attracted a surplus of what might be

termed common labor, assuming that most automotive labor, because of the industry's unique methods, falls into that category. There has not, however, been so sweeping a liquidation of common labor as of the white collar class, but this may be near.

A good many employers have staggered employment in order to hold their forces intact and to ameliorate distress. This was adopted as a temporary relief measure only, but as the year goes into its fifth month, with comparatively small improvement in the general situation and no immediate prospect of a bulge comparable to 1929, there is increasing discussion whether it can be continued.

One parts maker who divided his staff into halves, giving each approximately three days employment a week, has found his unit costs mounting. It takes each half a few hours to get into production stride, and there is the usual tapering-off at the end. This maker is said to be planning to go over his labor force, select the more efficient ones, retain only such number as is requisite to maintain operations on a 5 or 6-day basis, and drop the remainder.

It is not a subject discussed loosely in Detroit, because the Ford Motor Co. is so powerful and the facts so difficult to substantiate, but there is a widespread belief that the company has at times been releasing some of its labor only to rehire it later for substantially the same work at a lower rate. Other manufacturers are understood to have done likewise.

The effect is to reduce the individual earning power. Staggered employment has accomplished a like result. It may be true that wages have been maintained, on the whole, and that hourly rates have not been reduced, yet the inescapable fact is that the income per worker in the first four months of 1930 has been appreciably lower than a year ago.

Detroit, and other Michigan automotive cities as well, patently cannot support the labor force drawn to it last year. Undeniably there is a large surplus, which the automotive industry cannot absorb at this time, and probably all year. This surplus has not the accumulated savings to maintain it until automotive production rebounds to the level of 1929. Meanwhile, it is dragging down the earnings of that portion of the labor force which by personal efficiency and tenure does not deserve being pulled down to half-time by a floating surplus attracted last year.

There is a growing feeling at Detroit that something will have to be done about it.

Small Steel Interests in Difficult Position

PITTSBURGH, April 29.—Mixed sentiment prevails in the Pittsburgh district regarding the possibility of wage reductions in the iron and steel industry, although the predominant expression is that conditions remain sufficiently satisfactory to justify a retention of present scales.

On one hand are the large, fully-integrated producers who by means of extensive plant improvements during the past several years have been able to withstand so far in 1930 the effects of reduced tonnage and lower selling prices. Small interests, specializing on a few products, have been seriously affected both by the restricted steel demand and constant reduction in prices. It is admitted by the latter group that reduced operating costs are necessary and that wage adjustments are likely to receive serious consideration soon.

Steel producers are cognizant of the fact that maintenance of wages is an important factor in combating the business recession in progress since shortly after the middle of last year. Steps taken at the Washington industrial conferences early this year to obtain assurances that wages would not be reduced placed the larger industrialists in a position where individual companies would hesitate to incur the unfavorable sentiment that would be aroused were they to act contrary to the general opinion expressed at the meetings.

At the same time, steel company representatives point out that earnings so far this year have not been depressed to the level where wage revisions must be turned to for relief.

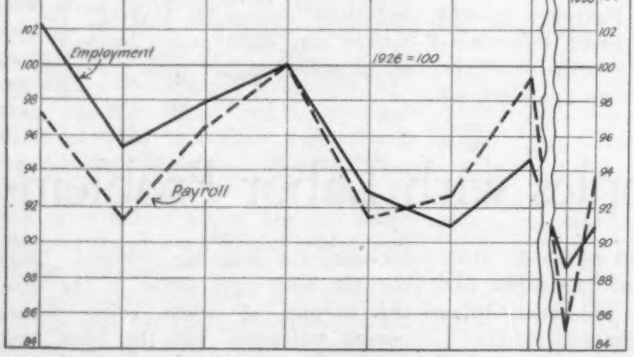
It is pointed out that weakness in prices of steel products has been more prolonged and more extensive than anticipated early in the year. The sharp upturn in steel demand in January was accompanied by the desire of mills to book as much business as possible, and in doing so prices were subjected to considerable pressure. The failure of business to further its improvement left an impaired price situation which so far has not been entirely corrected. These two circumstances are expected to result in second quarter profits less satisfactory than those for the first.

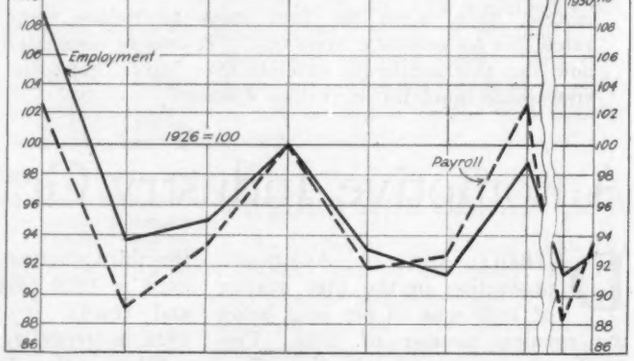
One relatively small mill in the Pittsburgh district recently reduced wages 10 per cent, the cut being accepted by employes when examination of the company's books revealed that it was losing money.

Steel Employment Nearly Normal at Chicago

CHICAGO, April 29.—Reports that the iron and steel wage situation has been receiving attention in other territories have not disturbed any policies here. Steelworks producers in the West are unanimous in their stand to maintain wage rates.

Operating and employment officials of the steel companies have not even





FEDERAL bureau of labor indexes for employment and payrolls in the iron and steel industry are charted, showing yearly averages and also January and February, 1930. The chart at the left is that for iron and steel manufacture. The chart at the right is for "iron and steel and their products," including foundries and machine shop products, machine tools, structural ironwork, steamfittings, cast-iron pipe, stoves, hardware

given thought to any readjustment in wages to meet declines in earnings of some of the producing departments. In view of the fact that steelworks operations in the Chicago district have been at 90 per cent or better for about eight to ten weeks, steelworks executives here regard the employment situation as virtually normal. Illinois Steel Co. has had almost the same number of employes during the past two months as the normal average payrolls since 1922. Other producers have a lighter personnel in some of their departments, due to lack of automotive buying or to completion of work on railroad track accessory material, but, on the whole, Illinois and Indiana employment reports show a slightly upward swing in recent weeks.

While Illinois employment declined 1.2 per cent from Feb. 15 to March 15, according to the Illinois department of labor, an upward trend has been shown in employment since that time. In the February-March period the decline in employment represented a drop of 1.1 per cent for manufacturing, and 1.3 per cent for nonmanufacturing employment. In the Feb. 15-March 15 period payrolls in Illinois declined 5 per cent, 4.2 per cent for manufacturing workers, and 6.5 per cent for nonmanufacturing wage earners.

It is generally regarded that the labor market is ample for the steelworks in this district. On the other hand, the turnover continues relatively large. In the West the steel industry is faced with a labor market that is less rooted to the locality than in the Pittsburgh district, as the latter has generations of steelworkers from which to draw. In addition, the widely diversified industries of the Chicago district, as contrasted with predominant steel and coal industries in other centers, contribute to the shifting of employes.

The general view is that it is economically unnecessary to make any downward adjustment in steelworks wages now.

Wage Cut Is Opposed by Large Corporations

NEW YORK, April 29.—Wage reductions have not come up for official consideration by the United States Steel Corp, or Bethlehem Steel Co. although the subject of wages and employment generally is receiving more than the usual amount of attention.

From an authoritive source it was learned the steel corporation does not contemplate a revision, while Eugene G. Grace, president of the Bethlehem company said:

> "You may quote me that Bethlehem has no such move under consideration. I can see nothing in the situation at this time to warrant such action, and it is to be hoped the time will not arrive."

Other large employers of labor in the eastern iron and steel industries were asked for their views and none would admit that wage adjustments are being considered as an immediate possibility. Sentiment appears to be that wage adjustments should be contemplated only as a last resort in a prolonged period of depression. A wage reduction is viewed as a reversal of the modern industrial policy to which general prosperity has been ascribed; much depends on developments in the next few months.

Adjustments Being Made But Rates Are Steady

CLEVELAND, April 29.—Industrial wage earnings reflect the slower rate of operations, but wage rates generally have not been revised. The question of a reduction in rates has come before some of the organizations of employers recently and they have taken the position that rates should not be lowered unless pressure becomes more acute than at present. No reductions have been made in the metal trades, and the forthcoming report of wage earnings for the past six months is expected to compare favorably with that of the preceding six months for those individuals who were employed.

Where work has been slack in plants employing skilled labor the least skilled have been laid off. In some instances where there is less demand for the higher skilled workmen they have been retained by being transferred to other jobs paying a lower rate. Practically all manufacturing industries have found it necessary to make some adjustments to keep their most desirable employes and to supply as much work as possible for their regular forces.

Jobbing foundries in this district are operating three to four days a week, and earnings have been reduced while wage rates have remained stationary.

An automobile body plant is reported to have reduced piecework rates temporarily, giving employes more time and spreading out the work to engage more employes than would be necessary if operations were continued at the usual rate of speed.

In the iron and steel industry wage rates have not been changed and no change is in immediate prospect. A reflex of lower demand and easier prices is noted in one department, where bar iron mill wages which are based on selling prices have been reduced for the second consecutive period, lowering puddlers' wages 50 cents a ton and other bar mill workers' wages proportionately, since the first of the year. This, however, effects less than 10,000 workers in bar iron mills of the country.

F. o. b. Pittsburgh

(*Concluded from Page* 129)

to be done to assure shippers of a 9-foot stage during the period of low water. Both Jones & Laughlin and the Carnegie Steel Co., however, have been able to maintain regular shipping schedules throughout the year. Jones & Laughlin recently sent its one-hundredth tow of steel products down the Ohio river. It started these shipments in 1921. Carnegie has completed delivery of its fifty-third tow to New Orleans and intermediate ports, having instituted its long-haul traffic in December, 1922. Since that time Carnegie steamers have traveled more than 210,000 miles and have delivered an average of more than 14,000 tons of steel products on each trip, or a sufficient cargo for five trains consisting of 60 cars each.

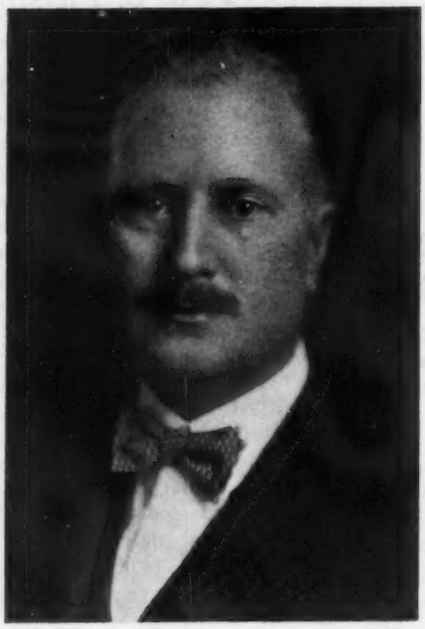
Rolling Stock Cartel on Continent

London, April 29.—(*European Staff Service*)—Following formation of cartels in raw materials and finished steel, the plan is being extended by continental countries to manufactured articles. A cartel has been formed for control of rolling stock, but Great Britain has refused to participate. The agreement has been accepted by Germany, France, Belgium, Switzerland, Italy, Czechoslovakia, Hungary and Austria. Belgium has been allotted 32 per cent, Germany 28.6, France 13.5, Italy 10 and other countries with smaller percentages. Headquarters will be in Paris. The agreement covers a year with provision for renewal.

Reading Co. has bought $2,000,000 worth of electrical equipment from General Electric Co., Westinghouse Electric & Mfg. Co., and American Brown Boveri Electric Corp.

Industrial Men in the Day's News

C. Louis Meyer, New President, Concrete Reinforcing Steel Institute



AFTER graduating from two colleges and spending two years with Truscon Steel Co., he returned home to organize his own company.

CONSISTENT growth of the company has been commensurate with the effort expended by its head and his aides. It now operates in 17 cities and has two subsidiaries.

ONE hundred million square feet of concrete joist floors have been installed, utilizing his steel form invention.

MANY young Americans leave their home towns to meet and achieve success in other cities or sections. The reverse is true of C. Louis Meyer, who as noted in IRON TRADE REVIEW of April 10 was re-elected president of the Concrete Reinforcing Steel institute at its sixth annual meeting held recently in Augusta, Ga. The election was in harmony with the Institute's policy of having its presidents serve two-year terms. Mr. Meyer is president of the Concrete Engineering Co. Inc., Omaha, Nebr., which he organized in his home town in 1912.

Prior to that, however, several years of hard, painstaking study and work elapsed. After graduating from the University of Nebraska in 1907, Mr. Meyer went to New York and entered Columbia university. He was graduated two years later. In 1910 he obtained his first industrial connection in the Detroit office of Truscon Steel Co., Youngstown, O. Later that year he was transferred to Dallas, Tex., where he soon was appointed manager of the Texas district, serving about a year, until the summer of 1912.

That year marked the return of Mr. Meyer to Omaha. There he formed his company, which, from a comparatively humble beginning in the warehousing and fabrication of concrete steel, has consistently grown and expanded during the intervening 18 years. At present it includes operations in 16 cities other than Omaha, namely, Chicago, Dallas, Tex., Des Moines, Iowa, Detroit, Houston, Tex., Kansas City Mo., Los Angeles, Milwaukee, Minneapolis, Oakland, Calif., Oklahoma City, Okla., Pittsburgh, St. Louis, St. Paul, San Antonio, Tex., and San Francisco. Mr. Meyer's company now has two subsidiaries, i. e., Ceco Steel & Wire Co., with principal plant at Peoria, Ill., where it manufactures steel roofing, fence posts, gates, etc., and distributes a full line of wire products, and Ceco Weatherstrip & Screen Co., Chicago, which manufactures weatherstrips, metal frame screens, etc.

Considered foremost among Mr. Meyer's several inventions, utilizing steel in connection with concrete, is a patented steel form. This is used in producing concrete joist floors for all types of buildings. The company recently passed the 100,000,000 square foot mark in the production of concrete joist floors with these steel forms.

In addition to his Concrete institute connections, Mr. Meyer is a member of American Society of Civil Engineers, American Concrete institute, and American Society for Testing Materials. He is a director of the Omaha Art institute and also a member of the board of trustees of Omaha university, Omaha, Nebr. His principal hobby is horseback riding.

Men of the Industry

H S. GRAY has been appointed manager of the new district sales office at Syracuse, N. Y., which Pittsburgh Steel Co., Pittsburgh, is opening May 1. Mr. Gray entered the employ of Pittsburgh Steel Co. in 1911, having previously been connected with Carnegie Steel Co. During the past 19 years he has traveled for the Pittsburgh Steel Co. in different sales capacities, and for the past year has been sales agent in the company's general offices in Pittsburgh.

* * *

R. T. Wilson, of Fownes & Orr, investment brokers, Pittsburgh, has been elected a vice president of Newton Steel Co., Newton Falls, O., and Monroe, Mich. Other officers and directors were re-elected at the recent annual meeting.

* * *

R. J. Harry, for 25 years with the Carnegie Steel Co., Homestead, Pa., latterly as assistant superintendent of electrical department, has resigned to bcome general sales engineer for Alliance Machine Co., Alliance, O., builder of cranes and heavy machinery.

* * *

Albert P. Withall, manager of sales for W. H. Miner Inc., Chicago, railroad supplies, was elected president on April 19 to succeed the late William H. Miner, whose death was noted in IRON TRADE REVIEW of April 17.

G. A. Johnson, chief mechanical engineer, was elected senior vice president.

* * *

James R. White, Jenkins Bros., New York, has been elected president of the Technical Publicity association of New York. Other officers elected are as follows: First vice president, Leon H. A. Weaver, Superheater Co.; second vice president, J. R. Schmertz, Mathieson Alkali Works Inc., and secretary-treasurer, George R. Holmes, S. K. F. Industries Inc.

* * *

W. E. Troutman, vice president and general manager of the Duquesne Steel Foundry Co., Coraopolis, Pa., has been nominated president of the Pittsburgh Foundrymen's association for the fiscal year starting June 1. H. F. Seifert, Westinghouse Electric & Mfg. Co., East Pittsburgh, has been nominated for vice president, and William J. Brant, Pittsburgh, has been nominated to continue as secretary-treasurer. Members nominated for the executive committee of the association are L. W. Mesta, Mesta Machine Co., Homestead, Pa.; F. C. T. Daniels, Mackintosh-Hemphill Co., Pittsburgh; W. J. Corbett, Fort Pitt Steel Casting Co., McKeesport, Pa.; H. P. Spilker, Sterrett-Thomas Foundry Co., Pittsburgh, and T. A. Reynolds, McConway-Torley Co., Pittsburgh.

R. J. WYSOR

Who as noted in IRON TRADE REVIEW of April 10 was appointed vice president in charge of operations of Republic Steel Corp., Youngstown, O.

* * *

John C. Ardaugh has been transferred from the manufacturing division, Lincoln Electric Co., Cleveland, to the welder service division with headquarters in the Monadnock block, Chicago. R. A. Kyle and Robert Newton also have been transferred from manufacturing to welding, the former now being located at 136 Liberty street, New York, and the latter at Cleveland.

* * *

George W. Callahan has been placed in charge of the branch office in the McCormick building, 332 South Michigan avenue, Chicago, recently established by Pickands, Mather & Co., managers of Interlake Steamship Co., Cleveland. He has been identified with the Cleveland office for several years and also was connected with the Duluth office of Pickands, Mather & Co., for more than two years.

* * *

Ralph A. Sherman, for the past ten years fuel engineer with the Pittsburgh experiment station of the United States bureau of mines, and recently in charge of field investigations of service conditions of refractories in boiler furnaces, has been appointed to the Battelle Memorial institute staff of engineers, Columbus, O. He will direct that Institute's program of research on combustion. Mr. Sherman is author of a number of papers on combustion studies in various types of furnaces and on powdered coal.

* * *

H. L. Miller, who resigned in March as chief engineer of the Buda Co., Harvey, Ill., with which company he had been identified since 1910, has been appointed manager of electric railway division, Pettibone, Mulliken Co., Chicago, manufacturer of railway track material. Mr. Miller studied civil engineering at Bucknell university and in 1905 became identified with the engineering corps on construction and plant maintenance of Pennsylvania Steel Co., Steelton, Pa. Two years later he entered that company's frog and switch department and resigned in 1910 to become draftsman for the Buda Co.

* * *

C. R. Brown, formerly assistant manager of the Dallas, Tex., office of American Cast Iron Pipe Co., Birmingham, Ala., has been made manager of its Detroit office at 4-120 General Motors building, to succeed F. W. McMeans, resigned. Mr. Brown has been with the company the past nine years, starting in the plant. He worked his way through several operating departments and later served in the engineering department. Several years ago he was transferred to the sales department and was again transferred to the Dallas office.

J. D. Roberson, with the company many years and lately in the sales department, has been appointed assistant manager at Dallas.

* * *

L. K. Simons, for the past ten years an operating executive for the Van Alen Co., Northumberland, Pa., became affiliated with the Reading Iron Co., Reading, Pa., May 1. He

is in charge of operations at the Reading company's cut nail plant in Pottstown, Pa.

* * *

Wilfred Vaughn was appointed general purchasing agent, effective May 1, of Heintz Mfg. Co., Philadelphia, pressed steel automobile bodies.

* * *

Hayward Niedringhaus, vice president and general manager of Granite City Steel Co., the steel division of National Enameling & Stamping Co., Granite City, Ill., was elected a director of the Mississippi Valley Trust Co., St. Louis.

* * *

J. B. Jackson, director of staff, General Motors Corp., Detroit, has been appointed general manager of Jackson Steel Products division, General Motors Corp., Jackson, Mich., to succeed C. M. Day, recently resigned. Mr. Jackson also was director of the General Motors Research laboratory.

* * *

John A. Topping, a director of the Republic Steel Corp., Youngstown, O., and of other companies, is moving his New York offices from 17 Battery place, to the Lincoln building, 60 East Forty-second street, separate from Republic Steel Corp. headquarters, located in the same building.

* * *

J. E. Conroy, formerly with the Standard Horseshoe Co., has been made general manager of sales for the Tremont Nail Co., Wareham, Mass., under direction of J. S. Kenyon, Providence, R. I., president of the company, which has continuously manufactured cut nails for more than a century.

* * *

Ely Griswold, vice president of Griswold Mfg. Co., Erie, Pa., was elected president of the Erie Manufacturers' association.

D. A. Currie vice president and general manager of Erie Foundry Co., was elected vice president, and A. M. Doll, president of Lovell Mfg. Co., was made treasurer.

* * *

George E. Shepard, who since early in 1924 has been assistant division contracting manager at Pittsburgh for American Bridge Co., was appointed central division contracting manager, effective May 1, to succeed the late Louis J. Affelder, whose death was noted in IRON TRADE REVIEW of April 10.

J. B. Leeper, manager of the tower department, will hereafter report directly to the general contracting manager, Arthur L. Davis, 71 Broadway, New York.

* * *

W. M. Neckerman, formerly vice president in charge of operations of Republic Iron & Steel Co., Youngstown, O., and at one time superintendent of the tube department of Youngstown Sheet & Tube Co., and then assistant vice president, has been appointed assistant vice president of the operating department of the new Republic Steel Corp., according to announcement by T. M. Girdler, chairman. Of that department R. J. Wysor is in charge as vice president, as noted in IRON TRADE REVIEW of April 17. Further appointments in perfecting the Republic organization are:

H. B. Carpenter, now general superintendent at Youngstown will be manager of the Youngstown district.

Photo by Blank-Stoller Inc.

W. M. NECKERMAN

Appointed assistant vice president in charge of operations of Republic Steel Corp., Youngstown, O.

C. H. Elliott, now in charge at the plants in Warren, O., will continue there as manager.

E. A. Portz of the Central Alloy Steel Corp., will be in charge of the Central plants at Canton and Massillon, O, as manager.

W. H. Oldham will continue to be in charge of the southern district at Birmingham, Ala., as vice president.

A. G. Greenamyer, now in charge of the Donner Steel Co. Inc., will be manager of the Buffalo district with headquarters at Buffalo.

J. L. Hyland, steel superintendent of the Illinois Steel Co., at Gary, Ind., will be in charge of the Chicago district as manager.

C. A. Ilgenfritz, formerly in charge of Central Alloy purchases, is to be director of purchases, while Walter Massman, now purchasing agent, will continue in that capacity.

W. C. Gubbins is appointed assistant comptroller. He is an old resident of Youngstown and a member of the board of education.

Frank Webb is named manager of the ore mining department and George Morse manager of the coal mining department. Both are old Republic employes.

F. M. Cardwell is named auditor. B. F. Boyer, named assistant auditor, at Youngstown, was formerly located in Buffalo.

W. B. Knuff, appointed chief cost accountant, formerly was at Massillon.

E. P. Foley is reappointed credit manager; C. D. Reese, appointed as his assistant, formerly was at Massillon.

H. M. Hurd is reappointed assistant treasurer, and G. H. Freeborn of Massillon, was named an additional assistant treasurer.

Kenneth D. Mann, formerly of the New England office, Boston, has been appointed southern district sales manager with headquarters in Birmingham, Ala., to succeed Norman Foy, who as noted in IRON TRADE REVIEW of April 24, was appointed sales manager of mild steel products at Youngstown.

Amalgamated Approves Wages; Seeks Members

Youngstown, O., April 29.—Plans for an organization campaign in all sheet and tin plate mills in the country were approved at the fifty-fifth annual convention of the Amalgamated Association of Iron, Steel and Tin Workers which adjourned here April 25. Only independent bar iron, sheet and tin plate mills now have contracts with the association, and not all of the independent mills are organized, though some have wage rates patterned along the lines of the Amalgamated scale, based on selling prices.

The association did not adopt the suggestion for a six-hour day, five-day week, except for a certain type of tin plate mill. It was decided not to ask for an advance in base wage rates, but to negotiate for the re-establishment of those now in effect, for the coming year. Conferences will be held with company representatives in Atlantic City, N. J., in May.

Export shipments of iron ore from Sweden more than doubled in 1929 compared with those of 1928 and were just short of the record trade of 1927.

Pittsburgh, Jersey Oppose Rates

Pennsylvania Commission May Sift Short-Haul Charges—New Jersey Against Inclusion in New York Zone—Chicago Studying Tariffs

PITTSBURGH, April 29.—Producers and consumers of iron and steel products in the Pittsburgh district are filing protests with the Pennsylvania public service opposing the new freight rates on short hauls scheduled to go into effect May 20.

Practically all producers and consumers are opposing the new scale and are expected to have their protest on file at Harrisburg shortly. No date has been set for a hearing on these applications, but it is regarded as unlikely that any decision will be made before the date on which the new rate go into effect.

The opposition in this district is caused by a sharp increase in the rate on short hauls occasioned by the institution of a scale of 6 cents per 100 pounds for five miles and under and proportionate large increases over old rates for hauls up to 50 miles from Pittsburgh.

CHICAGO, April 29.—Traffic men continue busy checking over the new freight rates on iron and steel products made necessary by the interstate commerce commission's ruling imposing a mileage scale beginning May 20. What are thought to be a number of improper groupings and errors in the application of the mileage scale have been discovered, but until all rates have been checked there will be no decision whether a protest will be made.

Traffic officials believe that if they can get the carriers to rectify the errors that have been made in applying the mileage scale in time so that the correct rate can be applied May 20, that no action will be taken.

NEW YORK, April 29.—While traffic authorities in New York continue to analyze the rate situation arising from the mileage scale tariffs to be effective May 20, northern New Jersey industrial and civic interests leave no doubts concerning their opposition to the proposal of the interstate commerce commission including northern New Jersey in the New York city rate zone.

Under this ruling manufacturers in these cities not only are to take the same rate as New York, which lies beyond in relation to the principal points of origin, but also are subject to an additional charge specified to cover special costs of lighterage, trucking and so forth in New York city. This latter charge takes the form of a cost based on a rate of 10 miles beyond the New Jersey railheads.

According to the New Jersey interests this is unfair, for not only do they have to pay a rate based in some instances on a distance extending a number of miles beyond their plants, but also a charge for special handling services which they in no way require. They claim the special charge should be levied only on those who require such service, and condemn the whole matter as a case of double inflation.

Moreover, on freight scheduled to go through the New York city zone to points beyond, the commission has ruled that there be an arbitrary charge of 2 cents per 100 pounds, instead of one based on the rate for 10 miles beyond the rail termini. New Jersey shippers contend that the 2 cent charge on such through shipments is inconsistent with the commission's tacit admission that the 10-mile charge is sufficient to cover special handling costs in New York harbor, and that it makes an undue burden, although granting that a special charge is necessary where special service is required.

On outgoing shipments from northern New Jersey cities south or inland an undue burden is imposed, it is claimed. As for westbound traffic, the disadvantage to northern New Jersey consumers of iron and steel, it is asserted, is too obvious in many instances to require citation.

The New York rate zone is bound on the west by a line running from South Amboy, N. J., in a northerly direction to Pompton Junction, N. J. It includes Paterson and Hackensask, N. J., and Yonkers and Mt. Vernon, N. Y., on the north and extends east on Long Island nearly to New York city limits.

While the 10-mile arbitrary applies to long haul traffic in trunk line and C. F. A. territory, a 30-mile arbitrary is added on business to the so-called

(Concluded on Page 170)

Middle Western Mileage Rates Compared

CLEVELAND, April 29.—Comparisons of the new mileage scale freight rates on iron and steel products with old rates from Cleveland, Buffalo, Youngtown, O., and Middletown, O., to typical destinations, in addition to those given last week on pages 101 and 102, follow:

(Cents per 100 pounds)

	Proposed rate	Present rate
From Cleveland to:		
Erie, Pa.	15½	13½
Buffalo	21	23
New York	37	40
Schenectady, N. Y.	34	38½
Altoona, Pa.	24	31
Philadelphia	35	38
Cumberland, Md.	25½	26
Baltimore	33	37
Toledo, O.	17	20
Columbus, O.	18½	21½
Lima, O.	19	22
Ft. Wayne, Ind.	21	23
Cincinnati	23½	26
South Bend, Ind.	24½	27
Indianapolis	26	27
Chicago	28	30
East St. Louis, Ill.	36	36
Detroit	20	23½
Flint, Mich.	22	27
From Youngstown, O., to:		
Erie, Pa.	15	13½
Buffalo	20½	23
New York	35	37½
Schenectady, N. Y.	33	36
Altoona, Pa.	21	25
Philadelphia	32	35½
Cumberland, Md.	22	25
Baltimore	30	34½
Toledo, O.	20½	22½
Columbus, O.	20½	24
Lima, O.	22	22½
Ft. Wayne, Ind.	24	23
Cincinnati	26½	26
South Bend, Ind.	27	27
Indianapolis	28	27
Chicago	31	31
East St. Louis, Ill.	38	38
Detroit	23	26½
Flint, Mich.	25½	29
From Buffalo to:		
Erie, Pa.	15	13½
Schenectady, N. Y.	26	21½
Philadelphia	31	32
Cumberland, Md.	28	25½
Baltimore	31	32
From Middletown, O., to:		
Toledo, O.	20	23½
Columbus, O.	15	18½
Lima, O.	15½	18½
Ft. Wayne, Ind.	18½	21½
Cincinnati	9½	14
South Bend, Ind.	20	26½
Indianapolis	17½	20½
Chicago	25	27½
East St. Louis, Ill.	29	30½
Detroit	22½	26½
Flint, Mich.	25	28½

Exports, Imports Set Records For Year

Shipments to North, Central and South America, and West Indies are Greater—Belgium Leads Again in Import Trade

EXPORTS of iron and steel products rose during March to 238,333 gross tons, gaining 40,907 tons or 20.7 per cent over the February trade and reaching the highest total for any month since November, 1929. The import trade displayed a similar trend and gained 12,253 tons, or 28.3 per cent, to total 55,604 tons in March—the highest total trade for any month since October, 1929, states the iron and steel division, department of commerce, Washington.

The upward trend in the export trade was reflected by nearly two-thirds of the various classes of material embraced in the stated total, and although a good part of the net gain was accounted for by increased shiments of scrap iron and steel, the strong gains registered in the trade in such products as skelp, black and galvanized steel sheets and plates were very gratifying, as was the fact that in no instance in which a decline was noted in the volume of a product exported did this tonnage exceed 1000 tons.

IMPORTS AND EXPORTS

Gross Tons

	—1930—		—1929—	
	Imports	Exports	Imports	Exports
Jan.	42,314	225,090	54,793	274,296
Feb.	43,351	197,426	58,146	259,711
March	55,604	238,333	52,747	270,925
Total, 3 mos.	141,269	660,849	165,686	804,932
April	.....	.....	54,337	277,580
May	.....	.....	74,272	261,516
June	.....	.....	63,635	247,811
July	.....	.....	71,378	270,532
Aug.	.....	.....	83,969	242,856
Sept.	.....	.....	60,974	222,408
Oct.	.....	.....	63,226	247,646
Nov.	.....	.....	54,041	241,829
Dec.	.....	.....	47,486	215,242
Total	.....	.....	739,004	3,032,352

The import trade did not display a similar trend, although the gain registered was, proportionately, half again as great as that in exports. Trade in individual products was almost equally divided between instances of increased and of decreased shipments, with the principal activity being displayed in such products as structural shapes, pig iron and ferromanganese.

Exports averaged 7688 tons per day during March, against 7051 tons in February and 7261 tons in January. The average daily movement in the import trade was 1793 tons, which compares with that of February, 1548 tons, and that of January, 1365 tons.

Skelp played a most important role in the 41,000-ton gain registered in the export trade, accounting for 11,921 tons of this total figure. Twenty-seven other classes of material also participated, the chief, after skelp, being scrap, which gained 6424 tons; galvanized steel sheets, 5304 tons; plates, 2827 tons; and black steel sheets, 2016 tons. The remaining 17 classes of products included in the 238,333-ton total showed reduced shipments, but in no instance did the reduction experienced amount to 1000 tons.

The principal product in the month's trade in point of tonnage was scrap of which a total of 49,619 tons was exported. Of this quantity Japan received 20,686 tons, Canada, 10,994 tons, and Italy, 8577 tons. Tin plate shipments totaled 23,142 tons, 9356 tons of which went to Japan, 4770 tons to Canada, and 2740 tons to China. The entire trade of 17,001 tons in skelp was with Canada, which country also received 13,414 tons of the 16,775 tons of plain shapes exported. Black steel sheet exports totaled 13,959 tons, 8208 tons going to Canada and 1566 tons to Japan, while 11,909 tons of the total shipments of plates was also directed to Canadian consumers.

Analysis of the distribution of iron and steel exports during March indicates that shipments to the Far East and to Africa declined in tonnage, while those to North and Central America and the West Indies to South America and to Europe increased.

Canada was, of course, the month's

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

	March	February
Italy	168	207
France	43	.....
Norway	2,395	.....
United Kingdom	329	2,836
Canada	2,072	2,090
Germany	.....	2
Total	5,007	5,135

ORIGIN OF MANGANESE IMPORTS

Gross Tons

	March	February
Soviet Russia in Europe	11,255	16,594
Brazil	9,332	1,409
British India	3,640	780
Gold Coast	6,035	2,875
United Kingdom	.....	12
Total	30,352	21,670

ORIGIN OF IRON ORE IMPORTS

Gross Tons

	March	February
Sweden	14,071	.....
Spain	12,883	7,900
Cuba	47,000	31,000
Chile	201,261	150,218
Algeria and Tunis	19,200	6,100
Egypt	6,925	.....
Canada	.....	70
United Kingdom	.....	50
Brazil	.....	5,302
Persia	.....	2,500
Total	301,340	203,140

ORIGIN OF PIG IRON IMPORTS

Gross Tons

	March	February
Netherlands	977	100
Norway	426	353
Sweden	101	123
United Kingdom	1,914	631
Canada	30	276
British India	8,702	7,417
Total	12,182	8,900

ORIGIN OF MARCH IMPORTS

Gross Tons

	Ingots	Steel scrap	Cast iron pipe	Steel bars
Belgium	898	.....	.....	1,206
France	281	.....	366	353
Netherlands	.....	.....	.....	.....
Canada	65	1,425	.....	7
Germany	115	.....	.....	1,112
Sweden	83	34	.....	676
United Kingdom	7	5	.....	39
Austria	.....	.....	.....	81
Czecholsovakia	.....	.....	.....	25
Norway	.....	.....	.....	5
Italy	.....	84	.....	.....
Cuba	.....	45	.....	.....
New Zealand	.....	930	.....	.....
Total	1,499	2,563	366	3,504

IMPORTS OF IRON AND STEEL PRODUCTS INTO THE UNITED STATES

(In gross tons)

	Mar., 1930	Feb., 1930	Mar., 1929
Pig iron	12,182	8,900	8,572
Ferromanganese and alloys (1)	5,007	5,135	6,095
Ferrosilicon (2)	758	335	967
Ferrochrome (3)	.....	42	36
Scrap	2,563	1,642	6,463
Steel ingots, blooms, billets, etc.	1,449	1,770	1,681
Steel bars	3,504	3,360	1,868
Iron bars	185	111	216
Wire rods	1,355	1,115	1,365
Hoops, bands, and scrolls	1,721	1,731	1,097
Boiler and other plate	306	365	.....
Sheets, skelp, and saw-plate	3,929	936	2,147
Tin plate	6	13	31
Structural shapes	18,102	12,402	11,302
Rails and splice bars	721	98	157
Cast iron pipe	366	2,049	4,502
Other pipe and tubes	1,611	1,617	3,823
Barbed wire	312	695	617
Round iron and steel wire	485	275	584
Telegraph and telephone wire	.....	1	.....
Flat wire and strip steel	132	100	119
Wire rope and strand	225	155	323
Other wire	64	21	61
Nails, tacks, and staples	444	274	547
Bolts, nuts, rivets, and washers	22	49	26
Castings and forgings	155	160	146
Total	55,604	43,351	52,745

(1) Manganese content.
(2) Silicon content.
(3) Chromium content.

leading market, taking a total of 101,242 tons of all classes of material, skelp accounting for 17,001 tons, plain shapes for 13,414 tons, and plates, 11,909 tons. The shipments of 39,581 tons made to Japan totaled 20,686 tons of scrap and 9356 tons of tin plate, while the principal item in the Mexican trade was 3311 tons of scrap. Exports of iron ore totaled only 1179 tons during March, the entire quantity, with the exception of a single ton, which was sent to Mexico, going to Canada.

Continuing the increase begun in February, the volume of the import trade of the United States in iron and steel products rose 12,253 gross tons to total 55,604 tons, the largest tonnage since last October. Despite this gain, however, there was no distinct trend developed by this trade, only 14 classes of goods showing increases against 12 which showed losses.

Structural shapes made up the principal item in the month's trade, the bulk of the importation coming from Belgium, 12,391 tons, from France, 3113 tons, and from Germany, 2418 tons. India was the chief factor in the trade in pig iron, supplying 8707 tons of the total of 12,182 imported. The trade in ferromanganese was divided almost equally between Norway, 2395 tons, and Canada, 2072 tons, while Germany with 3168 tons was easily the outstanding country in the 3929-ton trade in sheets. Belgium supplied 1206 tons of the 3504 tons of steel bars imported, 1112 tons of the remainder coming from Germany.

For the third consecutive month Belgium was the chief source of imports, her total of 16,429 tons being made up chiefly of 12,391 tons of shapes and 1206 tons of steel bars. Shipments accredited to Germany totaled 9457 tons and the 8707-ton total shown against India was composed solely of pig iron, while the 5328 tons which originated in France included 3113 tons of shapes.

The import trade in iron ore took a sharp upward turn in March and imports during that month totaled 301,340 tons, against only 203,130 tons in February. March receipts were drawn principally from Chile, Cuba, Algeria and Tunisia, Sweden and Spain. The trade in manganese concentrates and ore rose to 30,442 tons.

Exports of Metalworking Machinery

(In number except where otherwise specified)

	March		January through March	
	1930	1929	1930	1929
Engine lathes	108	86	261	230
Turret lathes	48	90	115	174
Other lathes	81	86	2,613	219
Vertical boring mills and chucking machines	29	26	80	89
Thread-cutting and automatic screw machines	65	77	224	247
Knee and column type milling machines	32	57	103	131
Other milling machines	45	89	221	219
Gear-cutting machines	54	44	116	121
Vertical drilling machines	18	49	218	124
Radial drilling machines	23	18	37	36
Other drilling machines	295	125	763	494
Planers and shapers	55	45	116	145
Surface grinding machines	23	21	81	29
External cylindrical grinding machines	70	99	154	264
Internal grinding machines	62	46	177	131
Tool grinding, cutter grinding, and universal grinding machines	134	79	472	279
Pneumatic portable tools	1,927	2,464	5,368	6,296
Chucks for machine tools	2,708	1,628	7,263	5,407

EXPORTS OF IRON AND STEEL PRODUCTS FROM THE UNITED STATES

(In gross tons)

	Mar., 1930	Feb., 1930	Mar., 1929
Pig iron, not including ferroalloys	1,742	1,897	4,083
Ferromanganese and spiegeleisen	1,445	152	525
Scrap	49,619	43,195	36,062
Ingots, blooms, etc.	2,101	3,021	11,218
Iron bars	103	170	1,080
Steel bars	9,836	8,025	17,623
Alloy steel bars	1,109	469	3,107
Wire rods	4,684	4,373	4,588
Plates	13,654	10,827	15,115
Skelp	17,001	5,080	6,432
Iron sheets, galvanized (1)	461	638	.....
Steel sheets, galvanized (1)	12,362	7,058	13,675
Steel sheets, black	13,959	11,943	16,918
Iron sheets, black	1,195	979	1,351
Hoops, bands, and strip steel	6,331	5,121	8,660
Tin plate, terneplate, etc.	23,142	23,497	24,478
Structural shapes, not fabricated	16,775	15,265	24,685
Structural shapes, fabricated	10,227	11,146	8,067
Tanks, complete and knocked down (2)	2,133	1,329	.....
Metal lath	429	378	419
Steel rails	8,532	6,844	11,277
Rail fastenings, switches, frogs, etc.	1,917	1,237	2,686
Boiler tubes	1,548	1,784	1,754
Casing and oil line pipe	8,711	7,175	12,351
Malleable-iron screwed pipe fittings	990	1,259	1,068
Cast-iron screwed pipe fittings	813	550	1,585
Cast-iron pressure pipe and fittings	824	1,080	1,147
Cast-iron soil pipe and fittings	3,441	1,343	1,070
Black and galvanized welded wrought-iron pipe (3)	1,437	1,756	13,829
Black and galvanized welded steel pipe (3)	7,688	7,507	.....
Plain wire	2,729	2,083	5,335
Barbed wire and woven wire fencing	3,319	2,884	6,576
Woven wire screen cloth	136	144	141
Wire rope	295	568	748
Insulated wire and cable, iron or steel	109	78	157
Other wire and manufactures	743	797	1,021
Wire nails	853	532	2,051
Nails, other than wire	442	535	80
Tacks	40	26	1,072
Bolts, nuts, rivets, etc., except railway	977	1,245	1,716
Iron castings	653	811	1,372
Steel castings	1,293	442	735
Car wheels and axles	1,621	1,049	3,293
Horseshoes	36	7	77
Forgings	878	1,127	1,725
Total	238,338	197,426	270,952

(1) Combined prior to 1930.
(2) Heretofore shown in a miscellaneous classification.
(3) Combined prior to 1930.

DESTINATION OF MARCH IRON AND STEEL EXPORTS

Gross Tons

	Galvanized steel sheets	Tin, terne plate	Black sheets	Steel bars
Argentina	200	734	640	11
Australia	.....	.....	230	.....
Brazil	599	249	43	40
Canada	2,750	4,770	8,208	4,966
Central America	411	1	5	177
Chile	1,001	282	1,081	274
China	101	2,740	233	279
Colombia	159	134	3	83
Cuba	485	681	102	134
Dutch East Indies	515	.....	.....	.....
France	.....	.....	448	.....
Guatemala	145	.....	.....	.....
Honduras	174	.....	.....	.....
Italy	.....	330	505	.....
Japan	492	9,356	1,566	847
Java	550	.....	.....	.....
Mexico	565	964	495	145
Philippines	3,696	751	36	760
Peru	155	505	1	23
Syria	.....	293	.....	.....
United Kingdom	.....	4	142	1,584
Uruguay	.....	917	.....	.....
Venezuela	72	1	21	27
Europe	.....	.....	.....	.....
Total (all countries)	12,362	23,142	13,959	9,836

DESTINATION OF IRON AND STEEL EXPORTS

(In gross tons)

Country of Destination	March, 1930	Feb., 1930	March, 1929
North and Central America and West Indies	121,324	97,745	135,333
Canada and Newfoundland	101,282	77,136	113,359
Cuba	4,250	4,554	5,273
Guatemala	308	362	1,039
Honduras	1,168	658	1,890
Mexico	10,976	8,600	5,443
Panama	1,166	3,222	1,435
Salvador	124	75	492
British West Indies	829	1,565	1,598
Other West Indies	856	1,302	3,116
Other Central America	365	271	1,688
South America	29,287	17,369	41,197
Argentina	3,940	2,672	8,337
Brazil	4,282	2,401	3,792
Chile	10,621	3,103	8,034
Colombia	1,770	1,009	7,111
Peru	1,351	1,606	3,483
Uruguay	1,182	1,760	967
Venezuela	5,939	3,968	8,874
Other South America	202	850	599
Europe	22,806	15,347	32,461
France	767	997	1,447
Germany	1,022	57	2,693
Italy	9,595	7,562	8,781
Poland and Danzig	4,228	.....	8,939
Soviet Russia in Europe	217	1,163	407
Spain	75	23	140
Sweden	144	410	313
United Kingdom	3,313	3,319	6,119
Other Europe	3,445	1,816	3,622
Far East	63,797	65,556	59,349
British Malaya	632	1,217	341
China	4,544	4,161	4,776
Netherlands East Indies	5,579	4,529	8,062
India and Ceylon	619	5,057	1,243
Hong Kong	51	293	181
Japan	39,581	40,414	30,430
Kwantung	886	71	1,389
Philippine Islands	10,170	6,915	11,108
Australia	850	1,229	1,309
New Zealand	119	628	197
Other Asia and far eastern markets	766	1,042	313
Africa	1,119	1,409	2,612
Union of South Africa	665	557	1,190
Egypt	32	119	1,054
Mozembique	151	470	105
Other Africa	271	263	263

Pittsburgh, New Jersey Oppose New Rates

(*Concluded from Page* 167)

short haul territory, the border line of which begins just East of Philadelphia and continues through Pennsylvania and New York or approximately 100 miles from New York city.

The New Jersey case, as it is known, on the Jersey side of the Hudson river, or the New York lighterage case as it is referred to in New York, is scheduled for a hearing before the interstate commerce commission in Newark, N. J., May 19.

The proposed mileage scale system, in the main, will continue to give Buffalo an advantage over Pittsburgh into New England. In many cases, the rates from both points will be higher than under the present system, but the advantage will be with Buffalo. Incidentally, it is interesting to note in connection with New England rates that both Cleveland and Pittsburgh will have the same rate into Boston, namely 40 cents.

Pittsburgh will continue to hold this advantage over Buffalo, Cleveland and Youngstown into many eastern seaboard consuming centers and in virtually all important instances the rates will be lower than under the present tariff. One important exception, however, is New York, with Buffalo getting a 31 cent rate as against 33 cents for Pittsburgh. On shipments from Bethlehem, Pa., to certain leading points the proposed rates will call for an increase. To New York, for instance, the rate will be 15.5 cents, or 1 cent above the current rate; to Baltimore 14.5, or one-half cent above the present figure; and to Boston 28.5 cents or 3 cents above existing rate. To Philadelphia, on the other hand, the rate will be 1 cent less, or 12 cents.

From Coatesville, Pa., to several of the leading consuming points the rates will be higher. To Baltimore, it will be 15 cents, up one-half cent; Philadelphia 10½ cents, up one-half cent; New York and Newark, N. J., 18 cents, up one-half cent; and to Boston 30 cents, or 4.5 cents higher.

While the proposed schedule will not affect export or coastwise trade, it will have a bearing on inter-coastal shipping, with Baltimore having a more pronounced advantage than before in this trade with the Pacific coast. Under the present tariff, Baltimore has an advantage in its Pittsburgh rate of 1 and 3 cents, respectively, over its two principal seaport competitors, Philadelphia and New York.

Under the proposed rate system it will have an advantage of 2 cents over Philadelphia and 6 cents over New York, the proposed rates from Pittsburgh to Baltimore being 27 cents, to Philadelphia 29 cents and to New York 33 cents. These compare with the present rates of 31, 32 and 34 cents, respectively.

One development in connection with the proposed rates had to do with less than carload rates, which in some instances are now lower than the new carload rates. At the instance of shippers, with a view to avoiding unnecessary work, a rule has been agreed upon that in all cases where the present less than carload rates is lower than the new carload rate, the new carload figure will be used on less than carload shipments.

In all other cases the present less than carload rates will remain as they are. It is understood, however, that these rates will be changed concurrently with the publication of rates that will be prescribed by the interstate commerce commission, in the eastern class rate case, Docket 15879, not yet decided.

Obituaries

NILS FALK, 50, secretary and treasurer of the Vanadium Corp. of America, New York, died unexpectedly April 21 while on a business trip at Salisbury, South Rhodesia, South Africa. Mr. Falk was for many years on the sales staff of the Carnegie Steel Co., Pittsburgh, and served later as an executive of the Guaranty Trust Co. of New York.

* * *

William Black, 53, president of B. F. Avery & Sons, Louisville, Ky., agricultural implement manufacturers, died April 19 at St. Petersburg, Fla.

* * *

Douglas Sprague, 69, consulting engineer, in New York, for many years, died at his home at Mt. Vernon, N. Y., April 17. He was born in Canada.

* * *

John E. Sweet, secretary and purchasing agent of Farrell-Cheek Steel Foundry Co., Sandusky, O., died recently in St. Petersburg, Fla. Burial was made April 25 at Montrose, Pa. Mr. Sweet had been identified with the Farrell-Cheek company since its formation in 1910 and took an active part in its development until two or three years ago, when he retired from active service.

* * *

Edward H. Kohl, 41, vice president of Kohl Steel Supply Co., Cleveland, died recently at his home in Cleveland. Death was caused by pneumonia brought on by the effects of rescue work in the Cleveland Clinic hospital disaster in May, 1929.

* * *

George W. Jones, who until his retirement Feb. 1, 1929, on account of ill health was manager of sales of the Pittsburgh Steel Co., Pittsburgh, died April 21 at his home in Pittsburgh. He was born in Wales, came to America at the age of 13, and became identified with the Pittsburgh Steel Co., in 1908 as a salesman. In 1910 he was transferred to the general offices at Pittsburgh as assistant manager of the fence department. Later he became assistant manager of New York office and in 1919 manager of the company's Chicago office. In 1923 he was made assistant general manager of sales at Pittsburgh and in June 1926, was promoted to general manager of sales.

Bar Mill Wages Reduced for May and June

Wage rates in bar iron mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers will be based on a 1.90c card for May and June, according to the bimonthly settlement announced this week. The average sales price of bar iron in March and April was 1.907c per pound. Puddlers will receive $11.30 a ton, a reduction of 25 cents a ton from the March-April rate. This is the second consecutive reduction in wage rates based on selling prices of bar iron, after they had remained on a price basis of 2.00c per pound for more than a year. Following is a comparison of price averages for the periods designated:

	1930	1929	1928	1927
Jan.-Feb.	1.95c	2.00c	1.85c	1.95c
March-April	1.90c	2.00c	1.90c	1.95c
May-June	.....	2.00c	1.90c	1.95c
July-Aug.	.....	2.00c	1.95c	1.90c
Sept.-Oct.	.....	2.00c	2.00c	1.85c
Nov.-Dec.	.....	2.00c	2.00c	1.85c
Yearly average	.....	2.00c	1.933c	1.908c

European Competition Is Sharper

Markets Continue Depressed—British Automobile Builders and Shipyards More Active—Indian Locomotive Boiler Contract Placed in Hungary

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, April 29.—(*By Radio*)—British iron and steel markets continue dull. Stocks of pig iron are accumulating. The Central Pig Iron association, however, has made no changes in prices, following the experience of Middlesbrough furnace interests in making reductions without stimulating business. Northampton furnaces now are permitted to shade their prices 60 cents a ton in the London district to meet continental prices.

Automobile manufacturers are placing additional orders for steel. Builders of rolling stock are feeling continental competition. Steelmakers in the Middlesbrough district have received good orders from shipyards, but are operating only half time. A substantial contract for locomotive boilers and cylinders for shipment to India was placed in Hungary. The tin plate trade is brighter, continental consumers having placed orders to the end of the year.

Reports from Germany and Belgium indicate export business in those countries is quiet, and price cutting is noted. The domestic market in France is fairly active.

European Steel Markets Show Little Gain

BIRMINGHAM, Eng. April 16.—(*European Staff Service*)—Markets have been quiet this week, a usual feature just before Easter and the dullness is more marked this year on account of the general state of the manufacturing trades. Now that the budget is out and uncertainties swept away, it is hoped that a general revival will set in. The budget has met with a cold reception among manufacturers as the increase in the income tax puts an additional burden upon industry. But the chancellor's decision not to interfere with the McKenna duties has been welcomed by the motor industry and steel manufacturers who supply such material. It is now believed that automobile manufacturers will lose no time in pushing ahead with schemes for the development of trade especially in export markets.

Sterling $4.86

In the Middlesbrough area the cut in prices brought some business but nothing like the tonnage anticipated when the manufacturers yielded to the pressure for cheaper iron. Export trade is still restricted to a few sales with Continental customers.

Shipments are below those for the corresponding period of March. The east coast hematite pig iron trade shows no change and despite the efforts of producers and merchants who are pressing iron on the market business is small and confined to small prompt parcels chiefly with home consumers. Prices are irregular but the quotation for mixed numbers remains at £3 15s ($18.22) though merchants are tempting buyers at rates below this figure. Stocks are accumulating and some curtailment of output seems likely. The make of pig iron is not being taken up so readily owing to short time working at allied steelworks in the Middlesbrough district.

At some rolling mills part time working is in effect as oil contracts are nearing completion. Manufacturers take a hopeful view of the situation

Current Iron and Steel Prices of Europe

Export Prices f. o. b. Ship at Port of Dispatch—By Cable

Dollars at Rates of Exchange, April 28	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$16.40	3 7 6*	$16.28	3 7 0	$16.28	3 7 0	$16.28	3 7 0
Basic-Bessemer	15.92	3 5 6	15.07	3 2 0	15.07	3 2 0	15.80	3 5 0
Hematite, Phosphorus 0.02-0.05	18.23	3 15 0	24.63	630*	.....	.....	17.74	3 13 0
SEMIFINISHED STEEL								
Billets	$29.77	6 2 6	$22.84	4 14 0	$22.84	4 14 0	$22.89	4 14 0
Wire rods	41.31	8 10 0	30.38	6 5 0	30.38	6 5 0	30.43	6 5 0
FINISHED STEEL								
Standard rails	$40.10	8 5 0	$31.59	6 10 0	$31.59	6 10 0	$31.65	6 10 0
Merchant bars	1.74c	8 0 0	1.18c	5 7 6	1.18c	5 7 6	1.17c	5 6 0
Structural shapes	1.68c	7 15 0	1.12c	5 1 6	1.12c	5 1 6	1.12c	5 1 6
Plates, ship, bridge and tank	1.79c	8 5 0	1.44c	6 10 6	1.44c	6 10 6	1.49c	6 15 0
Sheets, black, 24 gage	2.17c	10 0 0	2.24c	10 3 9	2.24c	10 3 9	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.47c	11 7 6	2.57c	11 13 9	2.57c	11 13 9	2.97c	13 10 0
Bands and strips	2.17c	10 0 0	1.29c	5 17 6	1.29c	5 17 6	1.29c	5 17 6
Plain wire, base	2.06c	9 10 0	1.46c	6 12 6	1.46c	6 12 6	1.51c	6 17 0
Galvanized wire, base	3.04c	14 0 0	1.76c	8 0 0	1.76c	8 0 0	1.76c	8 0 0
Wire nails, base	2.39c	11 0 0	1.46c	6 12 6	1.46c	6 12 6	1.49c	6 15 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 8.99	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported

		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$16.40 3 7 6	$19.21	490(2)	$17.30	620	$20.29 85
Basic pig iron	15.92 3 5 6	20.58	525(1)	15.07	540	21.72 91
Furnace coke	3.65 0 14 0	6.59	168	6.00	215	5.13 21.50
Billets	29.77 6 2 6	24.30	620	22.60	810	28.88 121
Standard rails	1.79c 8 5 0	1.46c	810	1.73c	1,330	1.51c 140
Merchant bars	1.74c 8 0 0	1.27c	705	1.25c	965	1.52c 141
Shapes	1.83c 8 10 0	1.26c	700	1.22c	940	1.50c 138
Plates, ship, bridge and tank	1.95c 9 0 0‡	1.46c	810	1.52c	1,170	1.71c 158
Sheets, black, 24-gage	2.28c 10 10 0	2.72c	1,510	2.60c	2,000	2.43c 225
Sheets, galvanized 24 gage, corrugated	2.58c 11 17 6	3.56c	1,975	3.25c	2,500	3.78c 350
Plain wire	2.06c 9 10 0	1.94c	1,075	2.15c	1,650	2.43c 225
Bands and Strips	2.17c 10 0 0	1.44c	800	1.50c	1,150	1.77c 164

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 14s 0d ($3.40) f. o. b. Ferromanganese £19 6s 0d ($93.99) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

as some useful shipbuilding awards have come out recently on the north-east coast. Some structural steel is wanted but the tonnage is not heavy. It is either for local use or for the south of England where a fair amount of heavy building is still going on. In the Midlands structural engineers have been short of orders for some time and the steel they need can be used stock. Prices are firm for all large sizes of steel and there is no indication of any deviation from the levels fixed by the Steel association.

In the Birmingham district it is expected that steel for the motor trades is likely to take on a much livelier tone but at present orders in all departments of the iron and steel trade are being postponed as works will be closing down for the Easter week. There is no movement in the pig iron trade and none is expected before the meeting of the Central Pig Iron Producers association April 24. While some furnacemen are optimistic enough to believe they will be able to maintain present prices the general opinion is that the market will follow the lead set at Middlesbrough a few weeks ago and declare a reduction. At the iron foundries of the Black Country work has averaged three days a week and in these circumstances buyers can afford to wait in the hope of cheaper raw materials. Makers of finished iron complain strongly of the attitude of the furnacemen in maintaining an abnormally high price for pig iron which costs less to produce now that coke is cheap and plentiful. The ironmaster considers he has quite enough difficulty in meeting foreign competition without having the additional burden of high pig iron.

Marked bars are a steady market and a few firms are able to take orders for this material. But in the lower grades such as crown iron and bar iron, prices are unremunerative. Yet makers are obliged to sell as cheaply as possible owing to keen competition from other parts of England and Scotland. Belgian No. 3 iron, which is not on the list of controlled products, has been selling at exceptionally low prices in the Black Country during the past week.

Tin plate makers consider themselves fortunate in being able to maintain fairly high output with a prospect of business for some months to come.

German Trade Falls Off

Berlin, April 15.—(*European Staff Service*)—Exports of pig iron, ferro-alloys and iron and steel products from Germany in February fell below those of January. The principal items exported in February were: merchant bars, hoops and bands, 97,344 tons; plates and sheets, 42,620 tons; semifinished steel, 36,906 tons; railroad track material, 29,712 tons; various forgings, 28,921 tons; wire rod and wire, 28,626 tons; forged tubes, 21,435 tons. The tonnage of scrap exported was 25,278 metric tons.

Imports in February were also below those of January. The principal items imported were merchant bars, hoops and bands 42,155 metric tons. The amount of scrap imported in February was 12,203 metric tons. Comparisons follow, in metric tons:

	—IMPORTS—		—EXPORTS—	
Mon. ave.	Pig iron and ferro-alloys	Other iron and steel	Pig iron and ferro-alloys	Other iron and steel
1927	23,895	217,505	29,910	347,645
1928	25,535	174,250	24,585	394,575
1929	14,765	137,435	36,115	448,330
1930				
Jan.	22,004	105,127	33,153	488,245
Feb.	13,597	98,397	24,271	409,822

British Production Up

London, April 15.—(*European Staff Service*)—Production of pig iron in Great Britain in March was larger than that of February, and of March, 1929. It included 204,200 tons of hematite, 266,400 tons of basic, 139,800 tons of foundry and 27,700 tons of forge pig iron.

The output of steel ingots and castings in March exceeded that of February but was less than in March, 1929. Comparative figures follow, in gross tons:

(Gross tons)

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	338(*)	855,000	638,600
1927	149	607,700	758,100
1928	132	550,900	710,400
1929	162	631,600	804,560
1930			
Jan.	159	650,000	771,100
Feb.	162	607,000	776,400
March	157	665,800	826,100

(*) Average for year.

Luxemburg Output Off

Brussels, April 15.—(*European Staff Service*)—The output of pig iron in Luxemburg in February was below that of January. Output of steel ingots and castings in February was slightly under that of January and included 213,826 tons of basic bessemer, 865 tons of open-hearth and 166 tons of electric steel. Comparative figures follow, in metric tons:

LUXEMBURG PRODUCTION

Mon. ave.	Furnaces on last day	Pig Iron	Steel ingots and castings
1913	....	212,320	111,355
1927	39	227,710	200,595
1928	38	230,840	214,315
1929	37	242,175	225,605
1930			
Jan.	37	249,875	216,315
Feb.	36	231,326	214,857

French Coke Falls Off

Paris, April 15.—(*European Staff Service*)—The output of coke at French collieries in February was less than that of January. Imports also fell off. Imports came principally from Germany, 286,205 tons, Holland, 71,792 tons, Belgium, 42,238 tons, and Great Britain, 3629 tons. Exports of coke from France went principally to Switzerland, Algeria, Belgium and Luxemburg, Spain, and Germany. Comparisons follow, in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,885	17,085
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929	397,435	453,720	39,070
1930			
Jan.	414,797	442,754	37,473
Feb.	392,950	403,887	15,905

Belgian Steel Backlogs Melting
As New Buying Fails To Appear

BRUSSELS, April 15.—(*European Staff Service*)—The Belgian iron and steel market continues expectant and there has been little activity in recent meetings of the iron and steel exchanges at Brussels and Charleroi. Quotations are unchanged. It had been thought at recent meetings of the international organizations that some modification might be made to induce buyers to show more initiative, but no action was taken in this direction.

At the meeting of April 7 other questions were discussed, in particular with regard to the measures to be taken in the event of one group gaining an excessive advance over some of the others. The question of conditions of sale in Scandinavia and in the Baltic countries also was taken up. A fine of £2 10s ($12.15) per ton was fixed as the penalty on any sales effected by one member of the international organizations in the protected territory of another member.

Generally speaking, certain larger producing countries find it difficult to sell their production in view of the serious decline in domestic demand, and there has been some increase in unemployment.

Periods of delivery for Belgian works have considerably shortened, and La Providence is in a position to deliver orders in fifteen days to three weeks. Arbed Terres Rouges has found it necessary to bank three blast furnace stacks, in view of the shortage of orders, this action being taken as from April 1. Hadir Corp. in Luxemburg has restarted a blast furnace which has been modified according to a new design, but another furnace has been blown out.

Franc—2.87c

Prices now ruling on the Belgian market are as follows: Foundry pig iron, 2.5 to 3 per cent silicon, 620 Belgian francs ($17.20) for the home market and £3 7s ($16.30) f.o.b. Antwerp for overseas markets. Blooms are quoted at £4 7s ($21.10) to £4 12s ($22.30), according to size. Billets in the domestic market range from 810 to 850 francs ($22.50 to $23.65), and for export from £4 13s ($22.50) to £4 14s ($22.80). Sheet bars are £4 13s ($22.50) to £4 15s ($23), and skelp £5 15s ($26.85) to £6 2s 6d ($29.65). Merchant bars are quoted at £5 7s 6d ($26.10) basis, beams at £5 1s 6d ($24.55), plates 3/16-inch at £6 10s 6d ($31.60), sheets ⅛-inch at from £6 10s 6d ($31.60) to £6 11s ($31.80), and checkered sheets at £6 14s ($32.50).

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

CLAUD S. GORDON CO., Chicago, has bought the physical assets, goodwill, patents, leasehold, machinery, equipment and supplies of the Cleveland Instrument Co., 1988 East Sixty-sixth street, and the General Pyrometer Supply Co., 2902 Carnegie avenue, both of Cleveland. The new consolidation will be operated under the name of Pyrometer Service & Supply Corp., at 1988 East Sixty-sixth street, Cleveland. It will take over service, repairs and supply activities of both the member companies and also of the Price Instrument Co. in the Cleveland district.

* * *

ALLIS CHALMERS MFG. CO., Milwaukee, has moved its district sales office at Chicago to suite 3101 in the Civic Opera building, 20 North Wacker drive.

* * *

FEDERAL PRESS CO., Elkhart, Ind., manufacturer of open-back inclinable punch presses, has appointed Homer Strong & Co. Inc., Rochester, N. Y., and Buffalo, its exclusive representative in these districts.

* * *

GAS RESEARCH CO., Dayton, O., engineer and constructor of industrial gas producer equipment and domestic gas plants, has moved its plant from 914 Miami Chapel road to 501 East Third street.

* * *

MACHINERY PRODUCTS CORP., 2020 North Major avenue, Chicago, has just occupied its new plant and offices at that address. It manufacturers screw machine products and undertakes other similar work on contract.

* * *

REEVES PULLEY CO., Columbus, Ind., manufacturer of variable speed transmissions and pulleys, has established a sales and service office at 5005 Euclid avenue, Cleveland. Its transmission will be sold and serviced from there for territory adjacent to Cleveland.

* * *

TONAWANDA IRON CORP., Buffalo, has appointed Pilling & Co., 1500 Chestnut street, Philadelphia, sales agents for New England, except Connecticut and Rhode Island. It has also appointed Phillips Ishan, 30 Church street, New York, sales agent for the city of New York, eastern New Jersey, Connecticut and Rhode Island.

* * *

INGALLS IRON WORKS CO., Birmingham, Ala., has acquired a structural steel and tank plant at Verona, Pa., which it is operating under its own name. As far as possible all purchases and contracts will be made through the general purchasing office at Birmingham, with only minor purchases for supplies and repairs made at Verona.

* * *

CONTINENTAL CAN CO., Syracuse, N. Y., has acquired a stock interest in Metal Box & Printing Industries Ltd., a large group of manufacturers of tin containers in England, and has granted its rights to use Continental's can-making machinery and equipment. O. C. Huffman, president, and Carle C. Conway, chairman of Continental, will be made directors of the English company.

* * *

GENERAL CONVEYORS LTD., affiliated with American Pneumatic Service Inc., is establishing a plant at Joliette, Que., for production of pneumatic tubes for mercantile establishments. Under its former name, Pneumatic Tube Supply Co. of Canada Ltd., Toronto, Ont., it has constructed several large underground air tubes systems. The plant is to start production in May.

* * *

KOPPERS CONSTRUCTION CO., Pittsburgh, has taken a contract from the Consumers Power Co. for the addition of 11 Becker-type producer gas heated ovens at its by-product coke and gas plant at Jackson, Mich. The addition will have capacity for 35,000 tons of coal annually and daily output of 1,200,000 cubic feet of gas. The company has other Becker-type gas plants at Flint and Saginaw, Mich.

* * *

WESTINGHOUSE ELECTRIC & MFG. CO., East Pittsburgh, Pa., has elected the following for the ensuing year: A. W. Robertson, chairman of the board; E. M. Herr, vice chairman; F. A. Merrick, president; L. A. Osborne, Charles A. Terry, H. P. Davis, H. D. Shute, H. T. Herr, Walter Cary, W. S. Rugg, James C. Bennett, T. P. Gaylord, Harold Smith and J. S. Tritle, vice presidents; W. K. Dunlap and S. L. Nicholson, acting vice presidents; H. F. Baetz, treasurer and assistant secretary; S. H. Anderson and L. W. Lyons, assistant treasurers and assistant secretaries; Edward H. Gerberding, assistant treasurer; Warren H. Jones, secretary and acting assistant treasurer; E. J. Mulligan, assistant secretary; F. E. Craig, comptroller; Charles C. James, general auditor; W. B. Covil Jr., G. D. Paper, H. F. MacLane, V. F. Covert and H. N. Mathias, assistant general auditors.

* * *

OHIO STEEL FOUNDRY CO., Lima and Springfield, O., has bought the steel foundry department and steel casting business of the Industrial Brownhoist Corp., Cleveland and Bay City, Mich. The steel foundry is located at Bay City and will be continued in operation there. A 15-ton open-hearth furnace will be installed and other extensions made.

* * *

STOCKER-RUMELY-WACHS CO., 117-121 Jefferson street, Chicago, representing a number of machine tool lines, will be known as Wachs-Gregg & Co. after May 1. Edward H. Wachs and C. R. Gregg have been conducting the business for the last two years. Wachs-Gregg & Co. will continue to represent Fosdick Machine Tool Co., and Bradford Machine Tool Co. Cincinnati; Liberty Machine Tool Co., Hamilton, O.; Loshbough-Jordan Tool & Machine Co., Elkhart, Ind.; Rockford Machine Tool Co., Rockford, Ill., and all of the other concerns formerly represented by the old company. Offices and salesrooms of Wachs-Greeg & Co. will remain at the same Chicago address.

* * *

DRYING SYSTEMS INC., 1800 Foster avenue, Chicago, drying baking and air conditioning equipment and industrial furnaces, has received a contract for equipment for cleaning, handling, finishing and assembling 3000 refrigerators cabinets every 24 hours, from the Majestic Household

Utilities Corp., Chicago. The latter corporation is a subsidiary of Grigsby-Grunow Co., Chicago manufacturer of radio receivers, which recently entered the mechanical refrigeration field. The Majestic company will start production soon with about 500 refrigerators daily, although the present plant is designed for expansion to 2000 units daily.

* * *

NATIONAL BREAD WRAPPING MACHINE CO., Nashua, N. H., will move to Springfield, Mass., May 15.

* * *

NOBLETT & SPARKS MFG. Co., Indianapolis, has acquired rights to manufacture and market electric products previously made by the Always Hot Mfg. Co., Jasonville, Ind.

* * *

MARION STEAM SHOVEL CO., Marion, O., has re-elected its officers, including J. H. Watters president, C. B. King and D. B. Shelton vice presidents, and H. J. Cronin secretary and treasurer.

* * *

J M. & L. A. OSBORN CO., Cleveland, has purchased the nonferrous business of the Nenno Metals Co., Buffalo. Clayton A. Nenno has been elected a vice president of the new ownership and will be general manager at Buffalo.

* * *

GREAT LAKES TRANSIT CORP., Buffalo, is remodeling its package freighter F. D. UNDERWOOD to specialize in carrying structural steel, pipe, reinforcing bars, other grades of steel and heavy machinery between ports of the Great Lakes. If there is sufficient demand for this service similar facilities will be installed on several other steamers of this line.

* * *

BRIGGS & STRATTON CORP., Milwaukee, manufacturer of automobile locks, switches, hardware specialties and gasoline engines for light powered implements and appliances, will start work shortly on the addition of a sixth floor to its present plant at Thirteenth street and Louis avenue, giving about 15,000 square feet additional floor space. Charles L. Coughlin is president.

* * *

HEIL CO., Milwaukee, manufacturing tanks, dump body and hydraulic hoist equipment for motor trucks, is preparing to erect a two-story extension, 200 x 210 feet, at Twenty-sixth and Montana avenues, at a cost of $250,000, including new equipment. The company has acquired manufacturing rights to the Arnold dryer, a portable machine with automatic oil heat control, for handling grains, forage crops, hay and similar materials. Patents are held by the Arnold Drier Co., Galesville, Wis.

* * *

MACWHYTE CO., Kenosha, Wis., manufacturing cable and wire rope, has booked an order for streamline tie-rods, bracing wires and fuselage wires for 260 airplanes to be built by the Douglas Aircraft Co., Santa Monica, Calif., for the government. The ships will be used by the army for observation planes. It will require about six weeks to fill the contract.

* * *

HILL CLUTCH MACHINE & FOUNDRY CO., Cleveland, has reopened its New York office to provide consulting service in the East. A. L. Whiteside is engineer in charge. He has been connected with the Cleveland plant for several years and will furnish first-hand aid in transmission and agitation problems. The company also manufactures large and medium gray iron and semisteel castings and special machinery.

* * *

NATIONAL RIVET & MFG. CO. and Special Stamping & Mfg. Co., Milwaukee, are being moved to Waupun, Wis., where they will be concentrated with the Shaler Co. The two Milwaukee concerns are closely identified with the interests controlling the Shaler Co., and the concentration of production is done largely to effect economies and efficiency. William Fleming Jr. is secretary and manager of the Shaler Co.

* * *

INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, O., has bought the Leidecker Tool Co., Marietta, O., manufacturer of drilling and fishing tools for the oil industry. The plant is to remain in Marietta and the present organization will be retained. The name will not be changed for the present. International Derrick & Equipment Co. is a large manufacturer of oilfield equipment and standardized steel buildings. It also produces transmission towers and sunstations, floodlight towers and various structural steel products.

Use of arc welding for the construction of an addition to the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., eliminated shock to delicate instruments in the building and allowed tests to be continued during the work.

March Iron Output in Canada Gains

Toronto, Ont., April 29.—Production of coke pig iron in Canada during March amounted to 72,582 long tons, a slight increase over the 70,600 tons produced in February but 16 per cent under the 86,176 tons for March, 1929. Compared with February output of basic iron rose from 51,262 tons to 57,234 tons, while foundry iron dropped from 10,828 tons to 9054 tons, and malleable iron declined from 8510 tons to 6294 tons. For the three months ending March the cumulative production amounted to 230,261 tons, 14 per cent under the 267,879 tons produced in the corresponding period of 1929.

Output of ferroalloys in Canada during March was 5279 tons, compared with 4821 tons for February. For the quarter the output aggregated 17,043 tons, a slight decline from the 18,237 tons produced in the first three months of 1929.

Production of steel ingots and direct steel castings for March totaled 117,487 tons, which was 10 per cent over the 108,612 tons of the previous month, but 14 per cent below the total of 137,158 tons made in March, 1929.

New Tariff May Become Law June 1

Washington, April 29.—Unless something unforeseen should turn up, the house of representatives will take up on Thursday of this week (May 1) the conferees' report on the tariff bill. Following that the house will take votes on several separate items including the debenture and flexible tariff, cement, shingles, lumber and silver, on which the conferees were not able to agree.

It is generally believed that the house will be able to complete its work on the bill the latter part of this week, so that next week the conference report will reach the senate. It is probable that that body will take at least a week discussing and taking final action on it.

Whether the bill again goes back to the conference depends entirely on what the two houses are willing to concede to each other. It is generally believed that the bill will again have to be sent back to conference, with final action still some way off. It is thought that the bill will probably become law about June 1. The conferees finished their work after three weeks of holding two sessions a day.

Machinery

Majestic List Totals Million and a Quarter and Goes to a Limited Number of Dealers—Outside of Chicago, Markets Are Quiet

GRIGSBY-GRUNOW CO. subsidiary, Majestic Household Utilities Corp., Chicago, planning the manufacture of mechanical refrigerators, has closed on its list of tools amounting to about $1,250,000, and including grinding equipment, presses, special drills and other production tools. The list was not distributed widely. Three technical schools in the Chicago district are buying several items and the Santa Fe railroad has closed on 14 lathes and four additional radial drills. Orders and inquiry have slumped in the New York district, dealers reporting one of the dullest weeks in the year. Pittsburgh, Worcester and Cleveland markets are quiet, with only a few awards being made and these for single units, mostly for replacement. Foreign trade is active, however.

New York, April 29.—Orders and inquiry again have slumped. Several dealers and builders report the dullest week of the year. The slump applies to practically all branches of machine tool equipment, although radial drills and turret lathe sales are reported, two of the former going to a New England plant. Singer Sewing Machine Co. has placed a few tools, including some grinding equipment. Worthington Pump & Machinery Corp. placed several milling machines. Sales are still largely limited to single units. With the exception of one small list still pending for an eastern railroad, little bulk business is up. Considerable business which has been pending has been shelved.

The bulk of the buying appears to be for replacement and little demand is noted for plant extensions. Competition is intense and sales forces are being pushed. Dullness also prevails in the upstate centers, which have been more active than the immediate New York territory. One or two of the New England bearing manufacturers are fairly active. Grinding machinery demand also has declined. Export business continues fairly active, Amtorg being about to close on a large list for Russia.

Although trailing far behind last year, crane buying and inquiry shows a slight improvement. Ornamental Iron Works Inc., Trenton, N. J., is inquiring for a 5 to 10-ton overhead electric crane; also one outside crane runway, 20 to 25 feet, to rail with 100 to 150-foot runway. Kropp Forge Co., Chicago, is in the market for two 25 to 40-ton overhead cranes, for a new forging unit the company is erecting. Kalman Steel Co., Chicago, is inquiring for a 3-ton electric hoist. Matlog & Son, Syracuse, N. Y., have taken a 7-ton gas crawler from the Orton Crane & Shovel Corp.

Worcester, Mass., April 29.—The market is marking time with some business outstanding but nothing in volume. There is a general lack of inquiry and the domestic market is unusually quiet. Russian automobile and tractor requirements offer the only immediate prospects.

Pittsburgh, April 29.—Activity in machine tools is confined to the placing of individual orders. A fair number of these are being placed but business still lacks large lists both in orders and inquiry. April sales are expected to show little change from those of March although a fairly large volume of business is pending with a number of tools scheduled for early closing. Machine tool users show a tendency to order no equipment other than that urgently needed and awards of some equipment pending for some time still are held up. The crane market continues quiet.

Cleveland, April 29.—Business for the month with some dealers was somewhat better than for March. However, no decided advance has been made by sales in this district. Spotty buying, largely for replacement and alteration programs, still features the market. Steel mills in Cleveland and nearby cities are placing some equipment. Used machinery moves at about the same pace held by new items. Prices are firm, one dealer reporting that any seller announcing a price increase now would be "ostracized" by his customers. The outlook for the next few months appears to be for a continuation of present activity with little change for either the better or worse.

Chicago, April 29.—April machine tool sales, according to preliminary estimates, were not far behind March in this district, due largely to a number of important orders late in the month. Equipment placed by Majestic Household Utilities Corp., subsidiary of Grigsby-Grunow Co., radio manufacturer, for producing mechanical refrigerators, totaled about $1,250,000. The order consisted largely of grinding equipment, presses, special drills and other production tools, and was not widely distributed. Bids closed last week on 18 lathes, a milling machine and six upright drills for the new Austin High school in Chicago. Chicago board of education also will buy a number of grinders, 11-inch lathe, portable electric drills and other tools for Tilden and Medill schools.

Santa Fe railroad has placed orders for a total of 14 lathes, and has purchased four additional radial drills, three 6-foot and a 4-foot, against its recent list. Chicago & North Western has added a 75-ton bushing press and a carwheel lathe to recent inquiries. The St. Paul has closed on most of the items on its recent extensive inquiry list. Despite occasional concessions, particularly on material sold to the railroads, prices are holding up fairly well. A tendency is seen toward a more complete readjustment to the let-down of sales from last year on the part of machine tool distributors.

Soviet Trade Hangs on Credit Situation

Peter A. Bogdanov, chairman of the board of the Amtorg Trading Corp., speaking at the Cleveland Chamber of Commerce club before guests to a luncheon sponsored by the Russian-American chamber of commerce, New York, declared that if the door to the soviet market is to be opened wide to American manufacturers, the American money market must be opened to the soviet union. W. J. Austin, president, Austin Co., Cleveland, presided at the luncheon and introduced Bogdanov, who during the course of his stay in Cleveland visited several plants with whom the soviet is doing business.

The speaker pointed out that during the year ended March 31, the Soviet Russia purchased $8,000,000 worth of manufactured goods in Ohio, and that figure will be doubled for the coming year if sufficient credit is made available. Cleveland concerns now actively engaged in sizable projects for Russia include the Austin Co., Arthur G. McKee & Co., Cleveland Tractor Co., and Oglebay, Norton & Co., together with a number of other companies who have been awarded contracts for machine tools and other equipment.

According to Bogdanov, Soviet-American trade, since its inauguration in 1924, has amounted to $650,000,000, of which exports from this country made up about 75 per cent. At the present time technical assistance agreements amounting to billions of dollars are in force with more than 40 American engineering and manufacturing firms. All American trade with Russia is handled through the Amtorg interests. Approximately 100 representatives of Cleveland manufacturers attended the luncheon.

Completes Seamless Mill

Power recently was applied to the third new seamless tube mill of the National Tube Co., Lorain, O., which replaces a lapweld unit. Two other lapweld pipe mills were converted to seamless units during the past few years.

CONSTRUCTION and ENTERPRISE

Concise, Timely Business Building Opportunities from Field of Industry

North Atlantic

NEW LONDON, CONN.—Adams & Hillyer Inc., 152 Howard street, will build a machine, forge and blacksmithing shop here at Hamilton and Smith streets.

NEW LONDON, CONN.—Gas manufacturing plant belonging to the Connecticut Power Co., 33 Union street, will be built by United Engineers & Contractors, 112 North Broad street, Philadelphia, at a cost of about $40,000.

WATERBURY, CONN.—Lux Clock Co., Sperry street, manufacturer of clock movements and parts, has had plans prepared through T. M. Freney, 51 Leavenworth street, for a 4-story plant.

ORONO, ME.—University of Maine is said to plan building a 3-story laboratory building here through Cummings Construction Co., Prospect street, Ware, Mass.

CANTON, MASS.—Crankless Mfg. Co., advises through Leslie Soule that operations of the company, which was recently incorporated to manufacture small marine diesel engines, for the remainder of this year will be largely experimental but that it expects to get into production during 1931. (Noted April 24.)

EVERETT, MASS.—New England Fuel & Transportation Co., 250 Stuart street, Boston, awarded contract for a gas-producer building and battery of 67 coke ovens to be erected here by the Koppers Co., Pittsburgh.

KEARNY, N. J.—Seaboard By-Products Coke Co., Newark turnpike, has awarded contract to Rust Engineering & Construction Co., 30 Church street, New York, for a 3-story coke plant here that will cost about $150,000.

BROOKLYN, N. Y.—C. J. Tagliabue Mfg. Co., 18 Thirty-third street, manufacturer of indicating, recording and controlling instruments, will occupy a 5-story manufacturing plant here at Sanford and Park avenues by July 1. Plant will have 300,000 square feet of floor space.

LONG ISLAND CITY, N. Y.—Diamond T Motor Car Co., 4517 West Twenty-sixth street, Chicago, is leasing an industrial structure here on Queens boulevard, a 1-story building, 200 x 200 feet. The company manufactures motor trucks.

NEW YORK—Margach Mfg. Co. plant, 211 Centre street, was recently damaged by fire. Company manufactures automobile metal feeders.

SYRACUSE, N. Y.—Syracuse Plating Works, W. A. Shuler general manager, has removed works from 315 East Water street to larger quarters at 212 Bear street.

WESTFIELD, N. Y.—Ford Motor Co., Fordson, Mich., is reported making negotiations for the Armour & Co. plant here which will be used as an assembly plant if the deal is consummated.

ASPINWALL, PA.—Emergency pumping station will be built here by Pittsburgh to cost $50,000, pending erection of a permanent station estimated to cost $1,000,000. Charles M. Reppert, 420 City-County building, is in charge.

EASTON, PA.—Easton Airport Corp. is said to plan an airport including machine shops and hangars here that will cost approximately $150,000.

PITTSBURGH—J. G. Dickson Co., 915 Beehan street, sheet metal products plant was damaged by fire recently. Loss was approximately $4000.

RIDGWAY, PA.—Viking Art Metal Products Co. has awarded contract to Hyde Murphy Co. for a plant building here. Construction cost will be $234,000. (Noted March 13.)

WASHINGTON, PA.—E. B. Lee, Chamber of Commerce building, Pittsburgh, is architect for a 3-story high school building to be erected here and to include a shop, 72 x 125 feet. Cost of school is estimated to be $900,000.

PAWTUCKET, R. I.—United Electric Railway Co., 100 Fountain street, Providence, R. I., has had plans prepared through N. W. Sanborn, above address, for a bus terminal to include repair shop here which will cost about $50,000.

East Central

CHICAGO—Crane Co., manufacturer of plumbing supplies, 836 South Michigan avenue, has been awarded a building permit for a 1-story, 24 x 127-foot substation costing $17,000 to be erected at 4142 South Kedzie avenue. Advice states general contractor is H. A. Peters Co., 19 South La Salle street.

CHICAGO—Aridor Co., 589 East Illinois street, manufacturer of moisture absorbing devices and caps for glass containers, has plans for a 2-story plant here on West Forty-eighth place that is to cost about $125,000.

CHICAGO—Norton Co., Worcester, Mass., manufacturer of abrasive wheel and grinding machinery, recently completed a 1-story, 121 x 221-foot plant here at Forty-seventh place and Turner avenue and future plans provide for the addition of two more stories.

ROCK FALLS, ILL.—Wilbern Forge & Share Co., manufacturer of garden tools and plow shares, experienced fire damage amounting to a loss of $80,000 recently when its warehouse burned.

SPRINGFIELD, ILL.—Springfield Aviation Co. has announced plans for construction of a hangar at airport here to include other units. Hangar will be all-steel, 80 x 80 feet.

BEECH GROVE, IND.—Big Four route, Big Four building, 230 East Ninth street, Cincinnati, has awarded contract to Ellington Miller Construction Co., 25 Jackson boulevard, Chicago, for erection of a 1-story, 184 x 444-foot railroad shop unit here.

ELKHART, IND.—Time-O-Stat Controls Co. has awarded contract for a 60 x 250-foot plant which will cost about $50,000. (Noted Feb. 13.)

FORT WAYNE, IND.—Inca Mfg. Co., maker of magnet wire, was recently acquired by the National Electric Products Corp., Pittsburgh, and plant here is being doubled in capacity, further increases being announced.

WINONA LAKE, IND.—Boyer Mfg. Co. was recently damaged by fire, loss approximately $5000. Company, headed by Charles Boyer, manufactures metal specialties including fishing supplies.

CALUMET, MICH.—Michigan Auto Co., Paul Pawler, manager, will begin work about May 1 on the erection of a 2-story fireproof garage and repair shop, 90 x 100 feet, to cost about $45,000.

DETROIT—Detroit Gray Iron Foundry Co., 6403 Wight avenue, has completed plans through Mildner & Eisen, architects, 924 Hamm building, for a foundry building addition.

DETROIT—Board of water commissioners, 8100 West Warren avenue, East Dearborn, Mich., care W. C. Rudd, assistant engineer, will build several units on West Warren avenue this

fall to include machine shop, storage unit and garage.

HOLLAND, MICH.—Manufacturers Foundry Co., East Ninth and Fairbanks avenue, advises that though company is now involved in litigation with the city over a parcel of land, no expansion is contemplated. (Noted April 17.)

ST. JOSEPH, MICH.—Old plant of Truscott-Pierce Boat Mfg. Co. was recently destroyed by fire.

CANTON, O.—Union Metal Mfg. Co., 1432 Maple avenue, manufacturer of metal columns and street-lighting poles, advises that a 1-story manufacturing addition to be erected will be 46 x 240 and that all additional equipment will be made in the company's own shops. (Noted April 24.)

CLEVELAND—Fisher Body Ohio Co., East 140th street and Coit road, maker of automobile bodies, is said to plan expansion.

CLEVELAND—Great Lakes Aircraft Corp., 16800 St. Clair street, has an industrial tract adjoining present plant which is understood will be developed.

CLEVELAND—Whiteway Stamping Co., 1201 East Fifty-fifth street, maker of stampings, tools and dies, is having plans prepared for a plant building adjoining present location.

CLEVELAND—Lorain Automatic Icer Co., 3953 St. Clair avenue, manufacturer of refrigerators, recently awarded contract to H. K. Ferguson Co., Hanna building, for a 2-story 100 x 296-foot plant on Carr avenue.

CLEVELAND—Euclid Machine & Engineering Co., 1838 Noble road, advises through A. C. Smeller that plans have been prepared through E. G. Hoefler, 5005 Euclid avenue, for a 1-story, 60 x 77-foot plant and office. Some equipment will be purchased, and total project is expected to cost about $40,000.

CINCINNATI—Hilton-Davis Co., Langdon Farm road, manufacturer and dealer in chemicals, contemplates building a plant addition that is understood to cost about $100,000.

CINCINNATI—University of Cincinnati, Clifton avenue, has awarded contract to Penker Construction Co., 123 Valencia street, for a 3-story laboratory building to cost about $150,000.

MINERVA, O.—Village council upon recent recommendation of board of trustees, proposes a 34 x 75-foot power plant to cost $35,000.

NEW PHILADELPHIA, O.—A. W. Rieser Mfg. Co. is said to be inquiring for machine shop equipment including air compressor and stamping machinery.

TOLEDO, O.—Surface Combustion Co., 2375 Dorr street, manufacturer of industrial and domestic heating equipment, advises it plans expansion adjoining present plant to cost about $250,000. Frank H. Adams is general manager. Company is a subsidiary of Henry L. Doherty & Co., 60 Wall street, New York.

KILSYTHE, W. VA.—Power plant of the McKell Coal & Coke Co., Glen Jean, W. Va., suffered fire loss recently amounting to $200,000.

MENOMONIE, WIS.—The board of education has voted favorably upon a resolution to submit an ordinance carrying a bond issue of $225,000 for the construction and equipment of a new senior high school, with manual arts institute, to the electors next fall. W. G. Ballentine is superintendent of schools.

MILWAUKEE—The Layton Packing Co., Thirteenth and Muskego avenues, is starting work on the erection of a new cooperage division, 75 x 150 feet. Federal Engineering Co., 444 Milwaukee street, is in charge of the work.

MILWAUKEE—The Wesley Steel Treating Co., 651 South Pierce street, has awarded contracts for the erection of a 2-story shop addition, 35 x 50 feet, to be ready about June 1. Charles I. Wesley is president.

MILWAUKEE—The Delta Mfg. Co., maker of woodworking machinery and tools, now completing work on a third story addition, 40 x 90 feet, on the present shop at 1661 Holton street, is taking bids on a 2-story shop extension, 30 x 82 feet. Architect F. F. Drohlshagen, 447 Virginia street, is in charge. (Noted March 6.)

WAUKESHA, WIS.—Board of vocational education has approved plans by H. C. Haeuser, architect, 445 Milwaukee street, Milwaukee, for the proposed new Waukesha Vocational school, 2-story, 120 x 175 feet, and is planning to issue the call for bids shortly. The investment will be about $100,000. O. B. Lindholm is director of the school.

Southern States

THIBODAUX, LA.—Town trustees recently closed bids for construction of filtration plant addition to water works system. F. P. Joseph, consulting engineer, Glenmora, La., is in charge of plans and specifications.

ABERDEEN, MISS.—Board of directors, chamber of commerce, is said to plan airport construction to include shops and other units at a cost of $50,000 with equipment.

COLUMBIA, MISS.—Power plant at the Mississippi Industrial and Training school here was recently damaged by fire with damage resulting in a loss of $34,000.

GARBER, OKLA.—Sullivan Machinery Co. warehouse and repair shop here was recently damaged by fire with loss of $25,000. George E. Failing is company representative.

HENRYETTA, OKLA.—Guy E. Crain is understood to have plans for a machine shop here to be 100 x 140 feet.

STILWELL, OKLA.—City has awarded contract to George S. Fowler for construction of new municipal light plant to cost about $75,000. Diesel engines will be installed.

KNOXVILLE, TENN.—Imperial Foundries Co. plant, 218 Kentucky street, 150 x 200 feet, was recently damaged by fire, loss approximating $16,000. O. H. Schriver, 921 Frances street, is president. Loss was confined chiefly to stove parts, patterns and other castings beside the building proper.

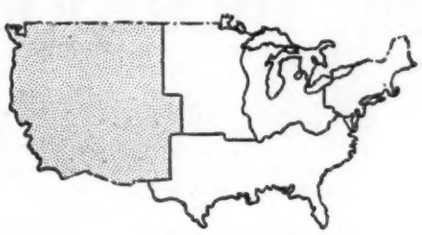
ABILENE, TEX.—West Texas Utilities Co. has completed plans for construction of a 2,300,000,000-gallon reservoir near here and plans are projected for construction of a 20,000 kilowatt generating plant nearby.

BALLINGER, TEX.—City commission has leased 40 acres north of city as site for an airport and will employ engineers to lay out plans.

SAN ANTONIO, TEX.—Prest-O-Lite Co. Inc., 30 East Forty-second street, New York, has awarded contract to Sumner Sollitt Co., National Bank of Commerce building, for a 1-story plant and storage building here.

WACO, TEX.—American Concrete Pipe Co., Magnolia building, plans construction of a branch manufacturing plant here to cost $50,000. F. A. Foley is general manager, Texas division.

BLACKSBURG, VA.—Virginia Polytechnic institute, Dr. Julian A. Burrus president, is reported planning the expenditure of approximately $500,000 on buildings to include experimental laboratory, chemistry building and mechanical unit.



Western States

LOS ANGELES—A. G. Mfg. Co., 4494 East Forty-ninth street, manufacturer of panel boards, switch boards, switches and other electrical appliances, recently started construction on a plant addition to cost about $80,000 that will bring production area utilized up to 24,000 square feet. C. J. Doherty is general manager.

LONG BEACH, CALIF.—Long Beach school board will soon award contract for a high school building to include shop units, project in entirely to cost approximately $300,000.

ONTARIO, CALIF.—Edison Electric Appliance Co., 5660 West Taylor avenue, Chicago, manufacturer of electric heating appliances, is proposing addition to its shop here.

DENVER—Bureau of reclamation, Wilda building, advises through A. F. Walter, chief engineer, that in addition to equipment to be purchased recently noted for the Owyhee dam, Owyhee project, Oreg., material to be purchased will require about 1,500,000 pounds of castings. (Noted April 10.)

BELLINGHAM, WASH.—Samuel Hill, 9669 Renton street, Seattle, and associates, have leased ore property near here and propose establishing a smelter for iron and ultimately steel on Vancouver island. The same interests have acquired the Modern & Round Island Coal Mines on Vancouver island.

EVERETT, WASH.—National Pole Treating Co. recently awarded contract for purchase and

installation of several steel tanks and smokestack to Hydraulic Supply Mfg. Co., 7500 Eighth avenue, Seattle.

SEATTLE—Beatty Knife Co., manufacturer, 3218 Harbor avenue, plans a 3-story addition to its plant building.

SEATTLE—Morel Foundry Corp. is expanding plant on West Spokane street by an addition to designing department, pattern shop and modeling room.

West Central

MT. PLEASANT, IOWA.—Garretson Mfg. Co. which was recently incorporated with $25,000 capital, has started an industrial plant and is now installing machinery for the manufacture of wagons, toys and camp chairs. J. H. Garretson is plant manager.

MINNEAPOLIS—Arrowhead Steel Products Co., 1101 Stinson boulevard, manufacturer of auto parts, is said to have plans for a 1-story plant. F. C. Bahr is owner.

ST. LOUIS—Turley Gear & Machine Co., 1505 North Tenth street, plans a 1-story, 70 x 80-foot addition to be used for machine shop expansion.

ST. LOUIS—Board of education, 911 Locust street, has awarded contract to John Hill Construction Co., Syndicate Trust building, for the Hadley Vocational school, to be erected here.

ST. LOUIS—Wrought Iron Range Co., 5661 Natural Bridge avenue, manufacturer of steam cookers, has let contract to Murch Bros. Construction Co., Railway Exchange building, for a 1-story, 27 x 118-foot plant that is expected to cost about $20,000.

Canada

CALGARY, ALTA.—Plans have been completed by Gore, Nasmith & Storrie, Confederation Life building, Toronto, Ont., for the new $3,770,000 waterworks project here and actual construction work will be started about June 1.

NANAIMO, B. C.—By-law has been carried here by the ratepayers in favor of spending $145,000 for improvements to local waterworks plant.

ST. JOHN, N. B.—J. Flood & Son, 113 Princess street, have been awarded contract for the erection of a 2-story machine shop on Rothesay avenue to cost $18,000 for the city council. Building is to be 45 x 165 feet, L. B. Wilson, city hall, is commissioner.

CREIGHTON MINES, ONT.—The International Nickel Co. of Canada Ltd., Copper Cliff, Ont., will start work immediately on the erection of a crusher plant to cost $125,000. Fraser Brace, Ltd., Copper Cliff, Ont., has general contract.

SAULT STE. MARIE, ONT.—Superior Alloys Ltd., has awarded contract to McLarty Bros. for the erection of a plant addition, to be 60 x 120 feet, construction work to be started immediately.

SOUTH PORCUPINE, ONT.—Dome Mines Ltd. will call for bids within a month for erection of a 1500-ton mill to replace structure destroyed by fire last fall. Mill will cost approximately $750,000. Alexander Fasken, Excelsior Life building, Toronto, Ont., is secretary.

TORONTO, ONT.—Bids are being received by architects, G. M. Miller & Co., no closing date set, for the erection of a 1-story plant, 80 x 150 feet, for the Otto-Higel Co., King Street west, manufacturer of piano actions.

ESTEVAN, SASK.—Construction work will be started at once on a $350,000 electric power plant here for the Dominion Power & Electric Co.

PRINCE ALBERT, SASK.—Grosser & Glass Ltd., Kerrobert, Sask., advises that a modern machine shop will be opened by them here about June 1. A welding and electric-repair shop is also being built. Equipment, comprising engine lathes, cylinder-boring machines, grinding machines, drill press, radial drill, power hack saw, rebabbiting machine, shaper and other machinery has been purchased in part. (Noted April 3.)

SASKATOON, SASK.—Canadian National railway, care H. L. Taylor, purchasing agent, Vancouver, B. C., has appropriation to spend approximately $16,000,000 in this district for new buildings, water supply facilities, and other units, large part of which will be spent on properties here.

Recent Incorporations

CHICAGO—General Regulator Corp. has been incorporated with 200 no par shares by Irving S. Roth, 139 North Clark street, to deal in all kinds of machinery.

CHICAGO—Burke Stoker & Mfg. Co. has been incorporated with $100,000 capital by John Vennema, Suite 509, First National Bank building, to deal in machinery and appliances.

CHICAGO—General Auto Reconstruction Co. has been incorporated with 75 no par shares by Daniel M. Dever, Suite 150, 32 West Randolph street, to engage in the reconstruction of automobile materials.

ANDERSON, IND.—Anderson Battery Mfg. Co. has been incorporated with $10,000 capital by Dr. George B. Metcalf and Elmer W. Smith.

DETROIT—Houston Electric-Steam Iron & Specialty Co. has been incorporated with $25,000 capital by C. S. Houston, 1507 Cass avenue, to manufacture and deal in electric steam irons and specialties.

IRON MOUNTAIN, MICH.—Bacco Construction Co. has been incorporated with $100,000 capital by John J. Bacco, Commercial Bank building, to engage in general engineering, contracting and construction.

ST. LOUIS—American Motor & Mfg. Co. has been incorporated with $30,000 capital by Henry D. Little, 119 South Seventh street, to manufacture motor manifolds.

ST. LOUIS—Ed. J. Bingle Mfg. Co. has been incorporated by Ed. J. Bingle, Monsette lane, East St. Louis, Ill., to manufacture railroad fuses.

CAMDEN, N. J.—Bawona Cometplane Inc. has been incorporated with $10,000 preferred and 3000 shares of common stock by Sydney Kaplan, attorney, Wilson building, to manufacture airplanes.

JERSEY CITY, N. J.—General Oxygen & Equipment Corp. has been incorporated with 200 common shares by Corporation Trust Co., 15 Exchange place, to manufacture oxygen containers.

NEWARK, N. J.—Jig & Die Boring Corp. has been incorporated with $100,000 preferred and 1000 shares of common stock by Nathan Strijesky, 31 Clinton street, to manufacture boring jigs.

BROOKLYN, N. Y.—M. S. Resina Mfg. Co. has been incorporated with $20,000 capital by I. Lefrank, 170 Broadway, New York, to manufacture machinery.

NEW YORK—Ansonia Mfg. Co. has been incorporated with $10,000 capital by the company, 55 Horatio street, to operate a pumping plant.

CLEVELAND—Cylinder Gas & Welding Co. has been incorporated with 250 no par shares by Bernard M. Kimball, 10026 Detroit avenue, to buy and sell acetylene gas and engage in general welding.

OKLAHOMA CITY, OKLA.—Salvage Dealers Metal Co. has been incorporated with $5000

capital by Frank Carmichael, 531 East G street to handle salvage metals.

OKLAHOMA CITY, OKLA. — Oklahoma Standard Iron & Metal Co. has been incorporated with $5000 capital by N. W. Rudman, 1515 West Thirty-fourth street, to handle salvage metals.

TULSA, OKLA.—Allied Construction & Engineering Co. has been incorporated with $50,000 capital by Frank E. Richardson, 604 National Bank of Commerce building, to engage in construction and engineering work on pipe lines, oil refineries and gasoline plants.

EL PASO, TEX.—Western Roofing & Sheet Metal Co. has been incorporated with $10,000 capital by W. H. Peterson, 3003 Wheeling street.

HOUSTON, TEX.—Texas Brass Mfg. Co. has been incorporated with $25,000 capital by D. D. Daugherty, 1416 Elysian avenue, to manufacture brass and nonferrous castings.

MILWAUKEE—Gregerson Mfg. Co. has been incorporated with 500 no par shares by J. T. Gregerson, 263 South Water street, to engage in a pattern manufacturing business.

BRANTFORD, ONT.—Aureola Sound Equipment Ltd. has been incorporated with 5000 no par shares by Archibald M. Harley and James H. E. Sweet, to manufacture and deal in electrical machinery, equipment and devices.

WALKERVILLE, ONT.—Walker Metal Products Ltd. has been incorporated with 25,000 no par shares by Harrington E. Walker, 1918 Buhl building, Detroit, to manufacture and deal in metal and metal products.

WINDSOR, ONT.—Fuel Saving Equipment & Engineering Ltd. has been incorporated with 400 no par shares by Bruce E. Service, 30 Dacotah street, to manufacture and deal in heating, ventilating equipment and appliances.

WINDSOR, ONT.—Victor Mfg. & Gasket Co. of Canada Ltd., has been incorporated with $40,000 capital stock by Kenneth V. Stratton, attorney, 372 Bay street, to manufacture and deal in gaskets, tools, dies, hardware and metal stampings.

MONTREAL, QUE.—Gloria Oil Burner of Canada Ltd. has been incorporated with $30,000 capital stock by Paul Ranger, 2024 St. Dennis street, to manufacture and deal in goods, wares and merchandises.

MONTREAL, QUE.—George W. Reed & Co. Ltd. has been incorporated with $100,000 capital by John W. P. Ritchie, attorney, 132 St. James street, to manufacture and deal in metal and metal products.

MONTREAL, QUE.—Auto Vending Machine Co. Ltd. has been incorporated with $100,000 capital and 50,000 no par shares by James H. Flack and Julian T. Leblanc to manufacture tools, implements, machinery and boilers.

MONTREAL, QUE.—Lewis Brown Co., Ltd., has been incorporated with 8000 no par shares by William F. Macklaier, 752 Upper Belmont, to manufacture and deal in heating equipment, oil burners, machinery and implements.

MONTREAL, QUE.—Denise Contracting Co. Ltd. has been incorporated with 50,000 no par shares by Harold C. Logan and Claude C. Savage, London, Ont., to carry on the business of general contracting and construction.

MONTREAL, QUE.—Polygraphic Co. of Canada Ltd. has been incorporated with 10,000 no par shares by Kenneth Archibald, 16 Parkside place, to manufacture and deal in machines and devices for printing, writing and duplicating.

MONTREAL, QUE.—General Conveyors Ltd. has been incorporated with capital stock of $200,000 and 200 no par shares by Stanley M. Clark and Edwin H. Charleson, of Ottawa, Ont., to manufacture and deal in pneumatic tubes, wire, cable, mechanical and electrical conveyors.

New Trade Publications

GEAR GRINDING CHUCK—City Machine & Tool Works, Dayton, O., features in a bulletin its chuck for gear grinding, with illustrations showing its applications and operation.

FORGING MACHINE—A bulletin by the National Machinery Co., Tiffin, O., illustrates procedure in production of an unusually intricate forging on its machine, with special dies.

POWER PRESSES — Hydraulic Press Mfg. Co., Mt. Gilead, O., has compiled a catalog of its hydraulic power press. It is illustrated to show the press and details of its construction. A table of sizes and capacities is given.

TROLLEYS—Robbins & Myers Inc., Springfield, O., has issued a folder on its steel frame, roller bearing trolley. Line drawings showing the construction and features, tables of dimensions and specifications are given.

CUTTING OILS—Sun Oil Co., Philadelphia, in a current bulletin, considers the subject of cutting oils in relation to production costs. Use of its type of oil for this service is recommended as a means to economy, for reasons the company adduces in the bulletin.

FIREPROOF CONSTRUCTION — Concrete Engineering Co., Omaha, Nebr., has issued the sixth edition of its handbook on fireproof construction, describing materials and devices used in concrete work. Data sheets give safe loads and weights of reinforcing.

BLOWERS—Wilbraham-Green Blower Co., Pottstown, Pa., has published a 16-page folder on its cupola blowers. It describes and illustrates the blowers, shows details of construction by line drawings, depicts by half-tone reproductions several typical installations and gives tables of specifications.

CHUCKS—Apex Machine Co., Dayton, O., has issued a catalog describing its quick change chucks, in positive and friction drive for single and multiple spindle operations, including new tools recently brought out, full-floating and semi-floating holders, floating tap sleeves and universal joint nut setters.

OVENS—Despatch Oven Co., Minneapolis, has issued a catalog of its various types of oven equipment. Both interior and exterior views of the ovens are given of continuous and intermittent type ovens. A part of the booklet is devoted to core ovens of many types and different methods of firing.

SAND TESTING EQUIPMENT—Harry W. Dietert, Detroit, has issued several additional leaves to his folder on foundry sand testing equipment. It describes the manipulation of several new pieces of equipment, including an instrument for determining the sintering point of sand.

TRAMRAIL—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., devotes a current bulletin to outlining the value to the steel industry of its tramrail installation for transportation of its burdens. Illustrations present various applications.

DROP FORGED TOOLS—A new edition of its catalog of drop forged tools, the thirty-seventh, has been prepared by the Billings & Spencer Co., Hartford, Conn. It represents the fruits of fifty-seven years of the company's life and is a complete guide to users of tools. Data cover sizes and other factors and information for ordering.

COMPRESSED AIR—Sullivan Machinery Co., Chicago, announces in a current bulletin the purchase of sales rights for Tanner tanks and gas for prevention of freezing in compressed air lines and the exhaust of compressed air tools. The tank provides means for introducing the gas into the compressed air to remove the moisture.

MOLDING MACHINES—Moline Iron Works, Moline, Ill., has issued a pamphlet on its molding machines. Various types are shown and the dimensions and the class of molding in which they are most efficient are given. New machines placed on the market by the company will be finished in an aluminum paint that will decrease damage by rust.

TEAPOT LADLE—Whiting Corp., Harvey, Ill., manufacturer of foundry equipment, has prepared a bulletin on its teapot ladle. A split spout is attached to the body of the ladle by means of key bolts. This facilitates application of new lining, the front half of the spout being removed to give free access to the interior.

SPEED REDUCERS—W. A. Jones Foundry & Machine Co., Chicago, has published a catalog of its herringbone speed reducers. The booklet gives a general description of the line of gears, explains the advantages, shows the various teeth and how they are cut. Most of the booklet is devoted to tables of horsepower of various gear ratios. The last section is replete with illustrations of typical installations.

LATHE OPERATION—Gisholt Machine Co., Madison, Wis., is distributing a series of bulletins showing how its turret lathes can be used to save time and expense in obtaining various results in machine work. They include an unusual chucking problem, balancing of heavy rollers, rolling-in valve seats, machining fins of airplane engine cylinders, unusual crankshaft chucking and reducing crankshaft spoilage.

GRINDERS—Grinders, polishers and motor air cleaners manufactured by the Hammond Machinery Builders, Kalamazoo, Mich., formerly Hill-Curtis Co., are described in a bulletin now being distributed. It includes tool grinders, production grinders, casting snaggers, combination disc and production grinders, double disc grinders, motor-on-spindle polishers, twist drill grinding machines, ring wheel grinders, multi-speed casting grinders, and combination grinders and buffers.

Pipe and Tube Prices—Plate Extras

Steel Pipe

(Base price $200 per ton)

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2 points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	47	21½
¼ and ⅜-inch	53	27½
½-inch	58	44½
¾-inch	62	50½
1 to 3-inch	64	52½

Lap Weld

2-inch	57	43½
2½ to 6-inch	61	49½
7 to 8-inch	58	45½
9 and 10-inch	56	43½
11 and 12-inch	55	42½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	43	26½
¼ and ⅜-inch	49	32½
½-inch	55	44½
¾-inch	60	49½
1 to 1½-inch	62	51½
2 to 3-inch	63	52½

Lap Weld

2-inch	55	44½
2½ to 4-inch	59	48½
4½ to 6-inch	58	47½
7 to 8-inch	54	41½
9 and 10-inch	47	34½
11 and 12-inch	46	33½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	44	34½
¾ to 1½-inch	47	37½
2 to 2½-inch	49	39½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black	Galv.
⅛ and ¼-inch	+11	+36
⅜-inch	23	5
½-inch	28	11
¾ and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	26	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+13	+48
⅜-inch	23	7
½-inch	28	12
¾ to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3⅛ to 3¾-inch	54 off
4-inch	57 off
4½ to 6-inch	46 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¼ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discounts reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	61 off
1¼ and 1½-inch	53 off
1¾-inch	37 off
2 and 2¼-inch	32 off
2½ and 2¾-inch	40 off
3-inch	46 off
3¼ and 3½-inch	48 off
4-inch	51 off
4½, 5 and 6-inch	40 off

SEAMLESS HOT ROLLED

1¾-inch	37 off
2 and 2¼-inch	38 off
2½ and 2¾-inch	46 off
3-inch	52 off
3¼ and 3½-inch	54 off
4-inch	57 off
4½, 5 and 6-inch	46 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....55 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net price per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inch long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot	.20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot to but not including 7.65 pounds square foot	.20c
Plates ordered 7.65 pounds square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, class A-B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Floor plates are furnished only as rectangular plates in stock steel grade. No physical tests will be made on floor plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Three feet and over up to published limit of length, but not over 80 feet	No extra
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts (Including straight taper plates)

Additional extra ..... .20c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .50c